

THE
BROOKLET'S
STORY
FRYE



1st edition copy
Alexs E. Hays



THE MEADOW BROOK

FIRST STEPS IN GEOGRAPHY

THE BROOKLET'S STORY

A NEW EDITION OF
BROOKS AND BROOK BASINS

BY

ALEXIS EVERETT FRYE

Come forth into the light of *things*;
Let Nature be your teacher.

WILLIAM WORDSWORTH

GINN AND COMPANY

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“Hast thou named all the birds without a gun?
Loved the wood rose and left it on its stalk?”

PREFACE

A short time ago "Brooks and Brook Basins" was read to a little girl of eight summers. When the story ended she said, "Papa, I like the parts that have lots of talking."

Here is the new edition, with "lots of talking"; but it seems better to use a new title, owing to the many changes in the text and to the new pictures.

The purpose of the book is twofold, — to deepen in children the love of nature, and to suggest a form of outdoor lessons.

A brook basin is a miniature world, since it is the unit of the earth's surface.

It is but a step from the slope of the little valley to any vast slope. The brook with its branches does the same kind of work as the river system.

The grove is a baby selva. The gully is a small canyon. The meadow easily grows to a prairie. The pasture land is like the grazing-plain. The seasons are a key to the zones. The air moving over the valley flows on to girdle the globe with wind belts.

In like manner the valley typifies the regions of life. Each blade of grass, each tiny earthworm, obeys the same forces that cover the earth with flora and fauna.

The use that man makes of everything in the brook basin tells the story of how he makes the earth his home. And all this is *geography*.

Thus the little basin mirrors the whole earth. "The Brooklet's Story" is the story of geography.

By telling pupils about the large features of the earth, as they study the school district, the *power to imagine* is developed. This is one of the chief aims of geography teaching.

Teachers already know the value of pictures, and that the best collections are those made by the pupils themselves.

To train the power to observe closely, there are perhaps no better devices than to have the pupils sketch and describe the natural features they see, and make sand or clay models of them.

Children revel in analogies that lead to the beautiful realm of *fancy*, where all childhood must wander till the discovery of cause and effect admits to the higher realm of *imagination*. Fancy is the iridescent bridge between memory and imagination. Unfor-

tunate the child that is not permitted to cross at leisure and to grow strong in imaging power while crossing.

The touch of the poet mind often reveals the beauty and deeper meaning of natural features and forces. That which inspires the poet's ideal is the best language to interpret it.

Store the mind with such beautiful verses as lie scattered over these pages, like gems in a rough river bed, and they will adorn lives made nobler by their presence.

It is often hard for the young mind to link cause and effect, but there is a charm in figures of speech that *suggest a truth*, as when the "chilly vapor puts on its cloud jacket." For many a fledgling idea in the text there are a dozen pecking at the word-shells.

Do not break the shells, but let them develop from within. Then the mind will taste the joy that springs from discovery of truth.

Effort is the true soil of growth.

THE AUTHOR

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THE BROOKLET'S STORY



THE BROOKLET'S STORY

LESSON I

THE RAINDROPS

"Ah, it has been raining!" thought Bunny, as he came out of his burrow one morning.

His two little eyes were shining beads. His coat, brown above and white below, was held by a pretty band across the breast. But all he could wag was a tiny bob of cotton.

He stood up on his hind legs and looked about him. His ears had caught a sound.

"Oh, it is Chip! How pretty his gray back looks, above the two black stripes on his side. I wonder why the gray squirrel is not out, too."

"Hello, Bunny!"

"Hello, Chip! Where is Dick?"

"He will be right along. We are going down to the brook."

"Here he comes now, Chip. See him over on the old stone wall. What a graceful tail he has."

"Yes, it waves like the tall grass. Once I heard a man say that the word 'squirrel' means a little animal with a tail like a shadow. It does follow like a shadow, doesn't it?"

"It surely does. What does your name mean, Chip?"

"Long ago the red men called me a chipmunk. I do not know what the name means. I am also called a ground squirrel. Dick is a tree squirrel."

Just then Dick came running by.

He didn't stop, but called out, "Hurry up, the brook is going to tell us a story." And away hopped the three friends.

"Chirp, chirp," sang a cheery robin.

"Why, that is Redbreast," cried Chip, who was running ahead.



FIND BUNNY, DICK, CHIP, AND REDBREAST

"Welcome, little robin!" called out the three.

"How did you know when to fly north?" asked Chip.

"I always fly where I can find worms, bugs, and berries," chirped the little bird.

Just then Chip caught sight of a tiny wild flower nodding, and he ran over to it, saying: "If this isn't our Daisy! You are like a wee sun with white rays. No wonder we call you the 'day's eye.'"

The daisy gave a nod of joy and swayed her pretty head back and forth.

Then Chip turned to Dick and asked: "Do you believe in fairies? I think I see some dancing on those bubbles."

"The colors are pretty enough for fairy dresses," said Dick.

"Those flakes of foam look like fuzzy ducklings to me," added Bunny. "But I don't see any fairies."

"Good morning, all," rippled the brook, just then.

"Good morning," they all cried.

Little Chip was running along the bank, peeking down into the water.

"What are you looking at?" asked the gray squirrel. "Your eyes look as if they were ready to pop out of your head."

"I tell you there are fairies, Dick," he chirped. "Don't you see their home down there?"

Dick looked down, but jumped back. He was afraid he might fall into the deep hole where he saw trees, clouds, and a blue sky, down in the water.

Then he looked again and smiled. "Pooh! the brook is just a long looking-glass. The same things are up there in the sky."

"But it does look like a fairyland," added the daisy. "I like to think of the fleecy clouds down there as little lambs in a blue field."

"Ah, Daisy," piped Redbreast, "I think I should nod and sway my head, too, if I stood here on the bank all day, looking at the pretty sights in the water mirror."

"Yes," babbled the brook,

"I am the blue sky's looking-glass,

I hold the rainbow bars;

The moon comes down to visit me,

And brings the little stars!"

MRS. M. F. BUTTS

"Well sung, Brooklet," cried Bunny. "And I know what makes you so happy, Redbreast. Your own voice sounds just like the bubbling brook. But what are you singing now?"

"O tell me, pretty brooklet,
Whence do thy waters flow?
And whither art thou roaming,
So smoothly and so slow?"

And the answer seemed to come from the brooklet:

"My birthplace was the mountain,
My nurse the April showers;
My cradle was a fountain
O'er-curtained by wild flowers."

ANON.

"But listen," bubbled the brook, "and I will tell you my story."

The little band drew nearer. Chip gave a squeak of joy, for he was very fond of stories. Dick shook his bushy tail. The wild flower nodded to Redbreast. Bunny raised two soft ears to catch the first words.

"We are a band of raindrops, and our home is far away in the deep sea."

Chip began to titter. He knew better. Had he not seen a brook in the meadow all the year round?

"Then how came you here?" he asked.

"Wait, little striped-sides, and I will tell you," said the brook sweetly.

"The rosy Dawn always wakes us there. She puts out the stars and paints the morning in the sky."

Chip's little mind could not grasp this. "Huh! she must have a big brush. Where does she get all the paint?"

But the brook just chatted on.

"You ought to see the sun rise from its rosy bed. It shines over the ripples and tips them all with gold."

"Did you bring some of the gold to Daisy?" broke in Chip again. He was so happy and full of life he simply couldn't keep still.

"Yes, we did," bubbled the drops.

"I don't see how," thought Chip, "but I will be quiet and listen to the story."

"The sunbeams come dancing over the water and cry out merrily to us, 'Now for a race!'

"Away we go, for we cannot stay when the sunbeams call us. Up, up, on our vapor wings. Up, up, over the tall masts of the ship. Up, up, into the bright blue sky."

Chip couldn't get all this through his head. Perhaps the others couldn't, either, but the chipmunk had to ask, "Why do you have to go when the sunbeams call you?"

"We don't know. They make us fly away, just as they dry the rain off your soft fur. Do you know why?"

"I never thought of that," said Chip, slowly, brushing a drop off his whiskers.

The brooklet bubbled on. "From the sky we can look down and see the gray gulls chasing their shadows from wave to wave."

"Do they ever catch up with them?" asked the same funny little voice.

The brooklet only rippled.

"Oh, how cold it is up here! We must put on our cloud jackets. What a host we are. The air is filled with water dust."

"Just a minute!" cried the chipmunk. "I can crack an acorn, but a cloud jacket is too hard for me. Who ever heard of a cloud jacket?"

"The cold air makes a boy put on a jacket," said Bunny. "Why shouldn't it make the vapor put one on, too?"

"A cloud looks like a white fur jacket to me," piped Robin. "When we look at the edge of the cloud we can see that it is lined with fleece, like a good warm jacket."

"Perhaps the inner side of a cloud — the side the sun shines on — is all fleecy and white, like the edges," added Dick.

"Wait a minute!" cried Chip. "I begin to see what

you mean by cloud jacket." And the cloud of doubt on his pretty face turned to a sunny smile.

Soon his face clouded again. "But who ever heard of water dust?" he asked. "Water makes mud out of dust."

"Yes," rippled the brook, "you are right. But anything light and fine enough to float in the air is dust. Very fine bits of rock are dust. Flour is dust. And a cloud is water dust."

Chip shook his head. "I don't quite see how dust can be made of water. but I will keep still and hear the rest of the story."

So the brook went on. "Hour after hour we race along with the sunbeams. But now the sun sinks to rest. Rosy fingers slowly close the gates of evening, and we are alone in the dark."

That was too much for the little chipmunk. He had often seen the night come on, but "rosy fingers" —

"Huh! whose fingers?" he fairly squealed.

"Haven't you seen the rosy fingers of the maid named Twilight?" rippled the brook. "She is a sister of Dawn."

"More brushes and paint pots!" snorted Chip. And he twitched his whiskers again, but kept still.

The raindrops went on with the story.

"Now a breeze comes tripping over the sea. A timid star peeps forth, to see if day has gone. Another and another follows, till the bright eyes are twinkling all over the sky.

"The twilight hours, like birds, flew by
As lightly and as free;
Ten thousand stars were in the sky,
Ten thousand in the sea;
For every wave with dimpled cheek,
That leaped into the air,
Had caught a star in its embrace,
And held it trembling there."

AMELIA B. WELBY

As the sweet song died away the timid chipmunk looked up at the sky and crept closer to the big gray squirrel. If the stars could come down to the sea, one might drop and hit him on the head.

A merry wave rippled on the brook.

"Oh, the beauty of the night! Out of the east moves the train of stars. In the west rocks a silver cradle. Or is it a birch canoe floating in the dark sea of the sky?"

Thus far Chip had done his best to wade along, but now he was over his head in deep water. A "train of stars," a "silver cradle," a "birch canoe," up there in

the sky! His little brain was in a whirl, but he would wait and ask kind old Dick what they meant. So he just listened.

"Above us the Milky Way spans the sky like a bridge of foam. Or is it the path of a rocket that has burst and flung sparks all over the sky?"

"Milky Way!" thought Chip. "It must be the path of the cow that jumped over the moon." But he kept still.

"Now and then a shooting star flashes into sight, like a swift bird on fire, and then is gone."

At this Dick sat straight up. Only a few nights ago a shooting star had scared him half out of his wits. So he begged the brooklet to tell him what it was.

"I can only tell you what I have heard," said the little stream. "Many small bodies are flying far out in space. They fly so fast that when one of them comes near the earth, the friction of the air makes it very hot. It may burn up or it may fly on. But how fast it must go, to make the air heat it so hot."

"But what is friction?" piped Chip. "I never saw any. If I should bump against it, would it set me on fire?"

"Rub your front paws together, as fast as you can," said the brook.

"Oh, it makes them feel warm!"

"Yes, the rubbing is friction. The air is thin, but when a shooting star flies into it, the friction heats it."

"Then you must look out, Dick, and not switch your tail so fast," said Chip, with a twinkle in his eye.

"The air may set it on fire."

A merry laugh went round, for all loved the happy chipmunk. Then the brook went on.

"Under the pretty stars we drift along, and hum as we drift.

"Wynken, Blynken, and Nod one night

Sailed off in a wooden shoe —

Sailed on a river of crystal light,

Into a sea of dew.

'Where are you going, and what do you wish?'

The old moon asked the three.

'We have come to fish for the herring fish

That live in this beautiful sea;

Nets of silver and gold have we!'

Said Wynken,

Blynken,

And Nod."

EUGENE FIELD

"Huh! funny names," said Chip.

"But what is it that wink and blink?" asked the brook. "And who can 'Nod' be?"

"I see," cried Chip, who was no sleepyhead. "But who ever went sailing in a shoe?"

"A little boy in a land far away wore wooden shoes," said the brooklet, "and he often played that a shoe was a boat. He used to sail it in a big ditch, or canal, near his home.

"One night he had a pretty dream. The sky was a sea, and the stars were the --"

"Fish!" shouted little Chip.

Pretty dimples ran up and down the brook, as it went on with the story.

"Humming this little song, the raindrops fall asleep and we dream that the sunbeams carry us away in tiny balloons.

"Ugh! a cold wind whistles by. The sunbeams flee. We fall to the earth, and are set at work in cold dark cells.

"One day we bubble up in a clear spring. At last we are free!

"Then we wake up. Where are we? Still floating above the blue water. Will the dream prove true? Wait and see.

"Now the day breaks and land is in sight.

"But the fields are brown and bare. Cold Winter has just left them.

"Here is work for all! The gardens will soon be filled with seeds. We will help them grow. We will cover the fields with violets and the meadows with golden grain. We will hang rosy apples on the trees and purple grapes on the vines.

"Now old Winter turns and sends his icy breath over us. We shiver and huddle together. The sunbeams fly away, and so we fold our vapor wings. Once more we are drops of water, and down we patter on the hills and slopes.

"The pastures lie baked, and the furrow is bare,
The wells they yawn empty and dry;
But a rushing of water is heard in the air,
And a rainbow leaps out in the sky."

ANON.

Up to this time the wild flower had been very quiet, but when she heard about the raindrops pattering down, her pretty face grew brighter. A little thought was budding in her head.

"What is it, Daisy?" asked Chip, whose sharp eyes saw everything.

"You know, Chip, how the wild flowers love the rain. I was thinking of a rain song I once heard a little bird singing. It ran like this :

"It is not raining rain for me,
It's raining daffodils;
In every dimpled drop I see
Wild flowers on the hills.

"The clouds of gray engulf the day
And overwhelm the town;
It is not raining rain for me,
It's raining roses down.

"It is not raining rain for me,
But fields of clover bloom,
Where any buccaneering bee
Can find a bed and room.

"A health unto the happy,
A fig for one that frets,
It is not raining rain for me,
It's raining violets."

ROBERT LOVEMAN

"Hurrah for Posy," they all shouted.

"That's the way to look at the rain," said the brook.

"And that is why all Nature seems glad to see us.

"The early birds sing to us, and they twitter with joy among the branches.

"The leopard frogs trill, 'Pr-r-r, pr-r-r, Spring is here, let her in, pr-r-r, pr-r-r!'

"And the old green bullfrogs croak, 'Tb-b-b, tb-b-b, Winter is gone, let him go, tb-b-b, tb-b-b!'

"Pretty pink earthworms come crawling out of the ground, to find out what all the fuss is about. Even the old cow lies out in the field, and blinks and blinks. The pasture will soon be green again.

"What a stir, just because the cold north wind scares the sunbeams away and sends an April shower."



LESSON II

AT WORK IN THE SOIL

"What can raindrops do?" asked Redbreast next morning, as she sipped the cool water.

"Do?" bubbled the brook. "You should see us at work!"

"Chip, chip, che-chip!" piped the saucy chipmunk, as if to say, "Ha, ha, that is funny!"

"Chuck, chuck, che-chuck!" barked the old gray squirrel, and he shook his bushy tail at the thought of a raindrop doing any work.

All at once *crack* went the dead branch on which they sat; and *splash* they both went into the cold water. With sputter and chatter they scrambled out, and ran to hide in the old stone wall.

A merry ripple stirred the brook. The wild flower only nodded. It did not dare to smile; it was afraid the squirrel would come and snip off its head.

Bunny ran to call Dick and Chip, for the brook was ready to go on with its story.

"Yes, we all work, for there are no lazy raindrops. In the spring the ground is full of cracks and holes, where our cousin Jack has been before us.

"What! you do not know Cousin Jack? He is a merry fellow, bright and full of life. But he likes to nip the buds and fruit."

"And the toes and noses of squirrels too," added Chip.

"But he is useful, for all that," said the brook. "Every year he comes to loosen the soil with his icy plows. Then the rain and air can reach the roots and seeds in early spring."

"He loosens the rocks in our stone wall too, doesn't he, Dick? Once he made a part of the wall tumble down. I got out just in time."

"It must be very dark down in the soil," said Red-breast to the raindrops. "How deep do you go?"

"It is easy to go through sandy soil, and it is not hard to creep through rich loam, but we must stop when we reach a bed of clay or rock."

"Does anything live down there?" asked Chip.

"We often meet earthworms. They are brave little creatures, working in the dark. They have no eyes, yet they can turn toward the light."

"What are they doing there? Why don't they live up here where the sun shines?" It was Redbreast speaking.

Little Chip chuckled. "Yes, bring them all up where the robins can eat them. But you needn't save any for me."

"The worms gnaw leaves and other bits of plants, and change them to loam," said the brook. "They bring this rich dirt to the surface and leave it in little heaps."

"Chip may make fun of worms, but they are among the best friends we have. I don't know how the plants could get along without them."

"Does anything else live in the cold ground?" asked Daisy.

"Many little creatures. There are moles as large as Chip, having fur as soft as silk, but very weak eyes. They stay in the soil most of the time, because they feed on worms. As it is dark there, they do not need eyes, and so they are slowly losing their sight."

"That is funny," said Chip. "But I once heard

about some fish in a dark cave. They have lost their eyes, but little scars are left in their place."

"Not funny at all," piped Redbreast. "What sense is there in keeping eyes if we are not to use them?"

"True," bubbled the brook. "Eyes and ears, toes and fingers, tongues and brains, grow when we use them. They also wither away when we do not use them."

"But we don't need to wag our tongues all the time, do we?" asked Dick, with a sly glance at Chip.

"No," replied little Chip, "but I think I learn as much by wagging my tongue as a good friend of mine does by wagging his bushy tail all day."

All had a hearty laugh at this, for Dick and Chip were the best of chums.

"At times we learn by asking questions," said the brook. "We can also learn by using our eyes and ears. Let me put it this way :

"A wise old owl sat on an oak ;
The more he saw the less he spoke ;
The less he spoke the more he heard ;
Why aren't we all more like that bird ?"

"But keep on asking, Chip, for I know that you also use your eyes and ears. That is the way to learn.

"I forgot to tell you about the ants in the ground. Like the worms, they are busy bringing soil up to the light and air. All over the valley you can see their rich hills waiting for the raindrops to come and spread them over the surface."

Chip's keen little mind was eager to learn. "What kind of shovel do you use?" he asked.

"Raindrops fall very swiftly, and we *brush* the soil along wherever we go. We can carry even the fine soil while we flow slowly. When we stop, this fine soil settles."

"That must be the mud we see when pools dry up," chirped Redbreast.

"Yes, it is; but we also dissolve part of the soil and carry it to the roots of plants and trees."

"Some of it you give to me," whispered the wild flower. "Part of my food comes out of the soil, but I cannot get it if the water doesn't bring it to me."

"Do plants have to eat?" This was a new thought to Chip, so of course he asked.

"Everything that grows must have food," said the brook. "And so we run into the grass roots, where tender blades hide from the cold winter. Soon the fields are green again. We wake the seeds in the garden, and they grow up to the sun and air."

"Whether we look, or whether we listen,
We hear life murmur, or see it glisten ;
Every clod feels a stir of might,
 An instinct within it that reaches and towers,
And, groping blindly above it for light,
 Climbs to a soul in grass and flowers ;

The cowslip startles in meadows green,
 The buttercup catches the sun in its chalice,
And there's never a leaf nor a blade too mean
 To be some happy creature's palace."

JAMES RUSSELL LOWELL

"How true," whispered the wild flower. "I was sleeping in a seed when a raindrop woke me, and told me the warm days had come."

The brooklet smiled and went on. "Soon the apple trees put forth snowy blossoms. Bits of the sky drop into the meadow where the violets grow. Still we toil on and on.

"Day after day other showers patter down. 'Catch us if you can,' some of the drops call to others. Away they scamper down the hill, for the soil now has water enough.

"'Wait for me!' cries one little drop; and where do you think it is? It has fallen into a buttercup and cannot get out. A sunbeam will help it next day, so

the other drops hurry on. They cannot stop even if they wish. What a merry race it is !

"Weeks pass. Then the apple blossoms sift down like snow. Later the corn flings its tassels to the breeze. The dreamy days of summer are here.

"All the long August afternoon,
The little drowsy stream
Whispers a melancholy tune,
As if it dreamed of June,
And whispered in its dream."

WILLIAM DEAN HOWELLS

"The cooler days come. Now the branches hang low with red-ripe fruit. Yellow sheaves of grain dot the fields of stubble. Long ears of corn stand ripening in the sun. Happy voices sing :

"'Heap high the farmer's wintry hoard!
Heap high the golden corn!
No richer gift has Autumn poured
From out her lavish horn!

.

"'Through vales of grass and meads of flowers
Our ploughs their furrows made,
While on the hills the sun and showers
Of changeful April played,

“‘We dropped the seed o’er hill and plain
Beneath the sun of May,
And frightened from the sprouting grain
The robber crows away.

“‘All through the long, bright days of June
Its leaves grew green and fair,
And waved in hot midsummer’s noon
Its soft and yellow hair.

“‘And now, with autumn’s moonlit eves,
Its harvest time has come,
We pluck away the frosted leaves,
And bear the treasure home.’”

JOHN GREENLEAF WHITTIER

“At length this part of our work is done, and we can come out of the dark soil as other raindrops have come before us. How happy we are!”

“But how do you get out?” asked Chip.

“Haven’t you ever seen a spring, Chip? I will tell you what it is like.

“Go all the way along our banks. Gather up the bubbles, the ripples, the little whirlpools, and the flakes of foam. Over all sprinkle the prettiest rainbow you ever saw.

“Now carry them to the green spot at the foot of the hill, and bury them in the dark ground.

"Then let them all burst forth like a Jack-in-a-box,
and you will see our spring.

"The water coming from the ground is a spring, and
it feeds the brook. Now

"I'm hastening from the distant hills,
With swift and noisy flowing ;
Nursed by a thousand tiny rills,
I'm ever onward going.

"The willows cannot stay my course,
With all their pliant wooing ;
I sing and sing till I am hoarse,
My prattling way pursuing.

"I kiss the pebbles as I pass,
And hear them say they love me,
I make obeisance to the grass
That kindly bends above me.

"So onward through the meads and dells
I hasten, never knowing
The secret motive that impels,
Or whither I am going."

EUGENE FIELD

As the voice of the brooklet died away in soft ripples along the banks two nimble squirrels ran down to the edge of the water. Their little faces were lighted up with wonder. Bunny could catch only one word,

"sorry," but he could guess what they said to the brook. What do you think it was?

The brook seemed to tremble with joy as it bubbled:
"Of course you meant no harm. But listen!

"Small service is true service while it lasts:

Of humblest Friends, bright Creature, scorn not one:
The Daisy, by the shadow that it casts,
Protects the lingering dew-drop from the Sun."

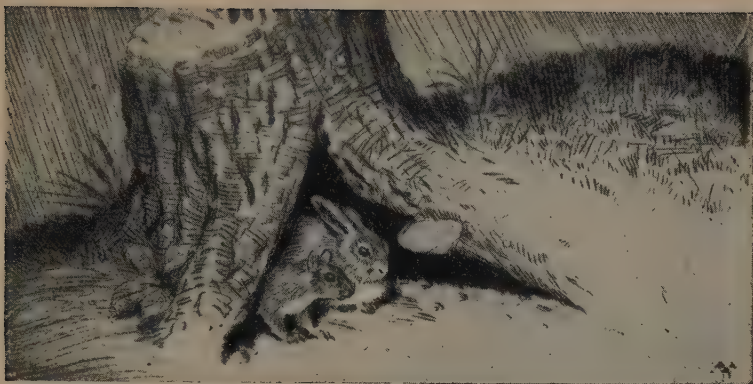
WILLIAM WORDSWORTH

"We like to see you playing among the branches, and you must try to find the great oak we have filled with acorns for you. Store them away, and think of the raindrops when you are eating them.

"Come early tomorrow. I will tell you more about our beautiful valley. Now good-by, all!"

"Good-by, Brooklet," they cried.

Surely enough, when the story began next morning, there sat Chip and Dick with the others, looking just as happy as good little squirrels have a right to look.



LESSON III

ON THE WATER PARTING

"Over in the meadow,
In the sand, in the sun,
Lived an old mother-toad
And her little toadie one.
'Wink!' said the mother ;
'I wink,' said the one :
So she winked and she blinked,
In the sand, in the sun.

"Over in the meadow,
Where the stream runs blue,
Lived an old mother-fish
And her little fishes two.

'Swim!' said the mother ;
'We swim,' said the two :
So they swam and they leaped,
Where the stream runs blue."

OLIVE A. WADSWORTH

"Did you hear that pretty song, Dick?"

"Yes, Chip, who was singing?"

"It wasn't Bunny. I never heard him sing."

"Let us go down to the brook, Chip, and find out."

"Why, it was Redbreast of course, Dick. Three cheers for Redbreast!" shouted Chip; and they were given as loud as the little squirrels could cheer.

At the noise Bunny's head popped out of the hole under the briars. "I must find out what all this fuss is about," he thought. And down he came, hoppety-hop.

Daisy was so happy with the song that she shook her head of gold till one of the white rays fell out. Chip began to sing, "He loves me," but no more rays fell.

"Never mind, Daisy," he said, "keep the rest, for I love every ray flower in your pretty head, and so do we all."

"Here you are, little friends, bright and early," bubbled the brook. "Did you bring your thinkers with you?"

Daisy was ready with a question that was puzzling her. "Did all the raindrops in your party find their way into our valley?"

"Oh, no; but let me tell you about them.

"The rim of our valley is up on the ridge. Some of the drops fell on one side of the ridge, and some on the other. Raindrops can only run downhill, and so we parted.

" 'Good-by!' we heard them calling over the ridge.

" 'Good-by!' we called back to them. And we have not met them since. But we may meet them when we go back to the sea. Who can tell?"

Just then two tiny bubbles came wriggling up from the bed of the brook. They looked like teardrops, as if the pebbles were weeping at the sad story.

"Bunny," asked the brooklet, "can you tell which way the drops must run when they fall on the ridge?"

Of course every raindrop in the brook knew the answer, but all kept still.

"The slope would make them run to us," said the pretty rabbit.

"But there is a slope on the other side of the ridge, too," put in Redbreast.

"Then the drops might flow either way," said Dick.
"Some might flow away from us."

"That is true," agreed the brooklet. "The rim of the valley is where we parted from the other drops. Can you think of a good name for the rim of a valley?"

"It is like a wall between two fields," thought Dick, who lived near the stone wall.

"Ridgepole," chirped the chipmunk. "It is like the ridgepole on the top of the barn, that sends the rain down both sides."

" 'Parting-place,' " said the Daisy. "The raindrops must part there."

"If we call it a 'water parting,' everybody will know what parts there," was Bunny's thought.

"Fuzzyfoot is right, isn't he?" asked Chip of the brooklet.

"Yes, in books the rim of a valley is often called a 'water parting.' It is also called a 'divide.' It divides the water for two valleys. To which valley does the water parting on our ridge belong, Dick?"

"It doesn't belong to either. It is just between them."

"Then it belongs to both," cried Chip.

"I do not know," sighed the wild flower, "for I have never moved from this spot."

The gray squirrel gave a knowing wink, and said:

"The water parting is the rim of both valleys. The slopes meet there, right at the top."

Which was right?

"Look," cried the brooklet, "here comes a shower! If Bunny and Dick will go up to the ridge, they can see just what happens."

Away they jumped, and reached the top as the drops began to patter down.

"Come under this old stump, Bunny," said Dick, "and the rain will not wet your soft fur."

How pretty they looked, sitting there together. Two pairs of bright eyes peered out at the rain. Two pairs of sharp ears listened to the patter on the stump.

"Oh, look, Bunny! we are on the water parting. Here is just where the drops are parting. Here go some down this slope, and there go others into our valley. See! they are forming little rills both sides of us."

"It has stopped raining, Dick. Let us follow these tiny streams both ways. I will go to the right, if you will go to the left. Then we will go back to the brook, and tell what we have seen."

.

"Why, here comes the rabbit all alone," cried Chip.
"Where can Dick be?"

"Ha! ha!" laughed Bunny. "I played a joke on him. He will come back by and by."

Then Bunny told how they went to the top of the ridge and hid in the old stump, how they watched the drops fall on the ridge, and how he agreed to follow the rill on one side while Dick went down the other.

"It was such a good joke!" he said. "Poor Dick, he did not think. His rill will lead him away over into the other valley." Then Bunny rolled in the sand and laughed till tears ran down his soft cheeks.

"But what did you see, Bunny?" asked Chip.

"Oh, yes, I forgot to tell the rest of my story. The rills ran slowly at first, but when they came to a steep place they ran as fast as I could hop along.

"How pretty they looked, leaping down in rocky places. Many rills flowed into one, and a little stream kept growing larger and larger.

"Other rills joined it. They were a merry lot. I heard one little fellow singing:

" 'One morn I ran away,
A madcap, noisy rill;
And many a prank that day,
I played adown the hill.' "

ANON.

"Then other streams came winding across the meadow, and where do you think they went?"

"Here we are!" rang out a merry chorus.

True enough, all the rills had run down to our brook, and many of them had reached the very place where Bunny was telling his story.

"Here comes Dick!" cried sharp-eyed Chip, and down the slope came the graceful squirrel, hopping over tufts and hollows.

His first words were "That was a good joke, Bunny, but it came out well. I found a big nut tree over the ridge. As soon as the frost comes to open the burs I shall hide the nuts in my old hollow tree. I wish you could eat some. Chip may have all he wishes."

"You are always kind to me," said little Chip, as he rubbed his cheek against Dick's side.

"What else did you see over the ridge?" asked the wild flower.

"I chased the rills down the slope and saw them form rivulets. The merry little rain rills cried to each rivulet:

" 'Run, little rivulet, run!

Summer is fairly begun;

Bear to the meadow the hymn of the pines,

And the echo that rings where the waterfall shines;

Run, little rivulet, run!

“ ‘ Run, little rivulet, run!
Sing of the flowers, every one :
Of the delicate harebell and violet blue ;
Of the red mountain rosebud, all dripping with dew ;
Run, little rivulet, run ! ’ ”

LUCY LARCOM

Dick went on with his story.

“The rivulets ran together and formed a brook just like ours.

“Now what do you think! That brook was telling the same story our brook tells us. I wonder if all brooks tell the same story?” asked the gray squirrel.

While Dick was speaking, Redbreast was very quiet. All at once she dipped her head, gave a few hops, flapped her wings, and chirped so loud that she scared poor Bunny half out of his wits.

“What is the matter?” asked Dick, as he stuck his tail out, ready to run.

“When I was flying north last spring,” began the robin, “I was caught in a strong wind that blew me far out of my way. I saw a river wider than this meadow. I cannot tell how long it was, for I could not see the end of it.

“How the wind blew! I flew over high hills, yet I could always see the river in the valley. But as I flew



"ITS WHITE CAP WAS IN THE CLOUDS"

higher and higher up the slope, the river became smaller. It wound like a ribbon among the hills.

"At length I saw a mountain so high that its white cap was in the clouds. On its side the stream was very narrow. When I came near the top of the great peak, all I could see were little brooks.

"Then I flew over the peak, and saw other brooks, but they were flowing into another valley. As they ran down the long slope, they flowed together and made larger streams, till at last they grew to be a river, wide and deep.

"It was just like our brook, only much larger. Away off, as far as I could see, the river wound across a plain, and there I could see boats sailing on it.

"So blue yon winding river flows,
It seems an outlet from the sky,
Where, waiting till the west wind blows,
The freighted clouds at anchor lie."

HENRY WADSWORTH LONGFELLOW

"At last the wind stopped blowing, and I flew north to my old apple tree, just as fast as my wings could carry me.

"Now I see it all! The top of that high mountain is a water parting, like our ridge. It parts the raindrops

for the great rivers and turns them down the slopes, just as the ridge does for our brooks."

"You are right, little bird," rippled the brook. "But water partings are not always high or even like ours on the ridge. Some are on low land, yet they may turn the rain to form great rivers.

"A divide may be on mountains, hills, or even low plains. Often a long divide runs on all three and forms the rim of a large valley. It need only be high enough to part the raindrops."

The little wild flower nodded to Redbreast, as if to say, "What a wonderful bird you are!"

All the others thought so, too.



LESSON IV

IN THE BROOK BED

"Hello, Dick."

"Hello, Bunny. Where are you going?"

"Down to the brook. Chip and Redbreast are there now. They went past some time ago.

"Hark! the brooklet is singing. Let us sit on this flat stone and listen."

"I come from haunts of coot and hern,
I make a sudden sally,
And sparkle out among the fern,
To bicker down a valley.

"By thirty hills I hurry down,
Or slip between the ridges,
By twenty thorps, a little town,
And half a hundred bridges. . . .

"I chatter over stony ways,
In little sharps and trebles,
I bubble into eddying bays,
I babble on the pebbles. . . .

"I wind about, and in and out,
With here a blossom sailing,
And here and there a lusty trout,
And here and there a grayling,

"And here and there a foamy flake
Upon me, as I travel
With many a silvery waterbreak
Above the golden gravel,

"And draw them all along, and flow
To join the brimming river,
For men may come and men may go,
But I go on for ever."

ALFRED TENNYSON

"Bravo, little brook!" shouted Bunny. "What a pretty song!

"We are all here now," he added, "ready for the story."

"What shall it be about today, Bunny?"

"About your own life here in the valley, if you will," said one of the happy little creatures.

"Then we will begin back at the bubbling spring," said the raindrops. "In fact, there are four springs that feed our brook. You will find them creeping out at the foot of the hill. Each of them sends down a small stream, but all meet to form our brook."

"How did you know which way to flow?" asked Chip. "Didn't any of you lose the way?"

"Oh, we couldn't do that. We can't run uphill, as you can. We can only run down."

"But you can climb a tree as well as Dick can," piped Chip.

"Climb a tree!" barked Dick. "Chip, be still!"

"Didn't you ever find juice in an acorn, Dick?" asked the chipmunk, with a twinkle in his eye. "How did it get there?"

Dick was caught in a trap. He made believe bite Chip, but didn't try to hurt him.

"The tree draws the water up, just as a sponge does," bubbled the brook. "The roots take the water in."

"And you can also fly up just as well as Redbreast can," added Chip. His little "thinker" was working.

"Oh, Chip, do be quiet," growled Dick. "You will make them all think that squirrels are dunces."

"Far from it," rippled the brook. "Chip is right.

After we go back to the sea, or even as we run along in streams, we may feel the call of the sunbeams, and then we put on the same vapor wings that we told you about.

"Then we must float up, for the vapor is lighter than the air."

"Sea, vapor, drops, brooks; sea, vapor, drops, brooks! It sounds like 'The house that Jack built'!" sang little Chip. "A kind of merry-go-round life, isn't it?"

" 'Merry' is a good name for it," rippled the silver drops. "How can we help being merry, when we see how happy Daisy is with the drops we give her; how Redbreast likes to dip her bill in the clear water; how Bunny likes the sweet clover we send up in the meadow; how Dick, and you too, Chip, like the juicy acorns we hang on the oaks.

"Yes, why shouldn't we be merry, when we hear the bees humming over the nectar cups, and the birds singing over the waking nests.

"Let me whisper something to you, Chip. 'The only way to be truly happy is to try to help others.'"

"That is a new nut for me to crack," thought Chip, "and it seems to have a bur on it. But I'll try to get the meat out of it."

The raindrops went on with the story.

"When we ran out of the soil we found all kinds of slopes. Some were so steep we could leap right down into pools. Others had sharp rocks that cut us up and let air into the water, till we looked like foam."

"So that is what makes foam, is it?" asked Daisy.
"I like to see the pretty flakes go sailing by."

"Yes, Daisy, foam is just a lot of fine bubbles filled with air. In one place where we made foam we ran so fast that a barefoot boy who came to fish clapped his hands and shouted, 'Oh, see the pretty rapids!'

"In other places we ran without a ripple. Of course we have to follow the slope of the land. When we rush along or when we flow slowly, we obey the slope. So too when we run straight ahead or when we wind about."

"But why must you always flow downhill?" asked Bunny.

"That we cannot tell, for we do not know. The snowy petals fall; later the apples follow. Our pretty robin beats the air with her wings, and floats into the sky; but let her furl the tiny sails, and she falls like the apple.

"We only know that something draws us down the slope. We feel it pull and we obey.

"Drawn in the same way, many little streams trickle down the sides of our valley. They reach the line where the slopes from both sides meet, and then where do you think they go?"

"I don't see how they can flow up again," said the wild flower, meekly. "They must make a pond."

"The slopes are so long and wide, they must meet in a long hollow," chirped the robin. "If they make a pond it must be very long."

"Of course the slopes meet here in our valley," added Dick, looking about. "But I don't see any pond here."

The brooklet rippled at the answer, and tiny waves ran from shore to shore.

"Oh, I see!" rustled the wild flower. "It is in the bed of our brook!"

"So it is!" chimed the merry voices.

"We ought to have seen that, Bunny," said Dick. "We ran down the slopes with the rills, and with our own eyes saw them run into the brook. Of course the slopes meet in the brook bed."

"And I see why the brook always flows one way," put in Chip. "The bed slopes down all the way from each spring."

"But why does the brook 'wind about, and in and

out,' as the pretty song told us this morning?" asked the robin. "Why doesn't it flow straight on?"

Dick scratched his head a minute and said: "It must be because the slopes do not meet in a straight line. Doesn't it look as if the brook wound more in the meadow than it does on the side of the hill?"

Little Chip cocked up his ear and put on a wise look, saying, "It seems to me that the brook winds about more where it is slow than where it is swift."

"Huh!" growled Dick. "Of course a swift brook can cut a straight bed for itself. It doesn't take much to turn a slow one aside. You ought to see that with one eye."

"I wonder what happens if a brook flows into a wide hollow?" asked Bunny. "What do you think, Dick?"

"It may fill the hollow and then flow on."

"You are right, bushy tail," bubbled the brook. "It may form a pond or a lake. Nearly all ponds are wide places in brooks; and nearly all lakes are wide places in rivers."

"Ponds and lakes are good places for frogs and fish, aren't they?" asked Chip. "And for tadpoles, wrigglers, devil's darning needles, boats, water lilies, and all such things. But I don't like ponds. Last winter one of them came near flooding my nest."

"But ponds and lakes are very useful too," added the brook. "In rainy weather they store up water and keep it from doing harm by rushing down in the streams.

"Bogs and marshes also hold back part of the rainfall, and then feed the streams in dry weather, as the ponds and lakes do."

"Bugs and what?" squeaked Chip.

"Not 'bugs' but 'bogs,' Chip. A bog is ground that is wet like a sponge. Heavy things will sink in it. Often it is filled with wet moss and dead leaves."

"Not a very good place to play," said Chip. "But what is that other thing you spoke of, — mush?"

"No, marsh," laughed the brook. "But mush would not be a bad name for either a bog or a marsh. A marsh is soft, wet land. It may be low, grassy land by a pond or stream, where the water often overflows, or it may be the bottom of a wet hollow.

"Put on your thinking-caps now, my wise little friends, and tell me how a water parting differs from a brook bed."

"The water parting is like the rim of a dish, and the bed is down in the dish," was the answer of the wild flower.

"You are a sharp-eyed posy," said Bunny. "When

Dick and I were up there under the old stump, we were right on the rim of the valley."

"The water parting goes round the valley; the bed of the brook cuts across it" was Chip's bright answer.

"I think the brook bed is just like the water parting," began Dick. "Both are the edges of the same slopes."

"If they are alike, Dick," piped Redbreast, "why doesn't the brook bed scatter the raindrops?"

"I see!" called out Chip; and surely enough the little fellow did. "The water parting is the upper edge of the slope; the lower edges meet in the bed of the brook."

"Well done, Chip!" cried Dick. "We thought that out very well *together*, didn't we?"

Chip hid his face behind Bunny's great ears and smiled.

"You have all done well," rippled the brook. "I will tell you another name for our valley. It is called a brook basin. All the land that sends water to a brook is a brook basin.

"Now let me tell you about a large river that I once saw.

"Far away to the east is a great land called the

Old World. One part of it is Africa, the home of the black people, and part of Africa has a vast forest.

"Redbreast would have to fly many days and nights to reach this forest. Indeed, I fear she would die on the way, for she would have to try to fly across a wide ocean.

"This forest is in a hot part of the earth, where heavy rains fall. There are lakes so wide that Redbreast, even when high in the air, could not see from shore to shore.

"There are mountains too, so high that their tops seem to touch the sky, and so cold that their peaks are white with snow. They look like the great banks of cloud that often roll up before a storm.

"The region has many streams. Some flow from the great lakes; others run down from the high land. The streams flow together and form a river, deep and wide.

"You should see the water tumbling down the steep places. How it roars and foams!

"Day after day it rushes along its bed, growing larger as other rivers join it. Then it flows in a land where no more rain falls, and no other streams come to join it. For miles and miles it has not a single branch.

"On every side the hot sun beats down. The air

is stifling. The banks are parched and dry. Can anything live in such a place? We shall see by and by.

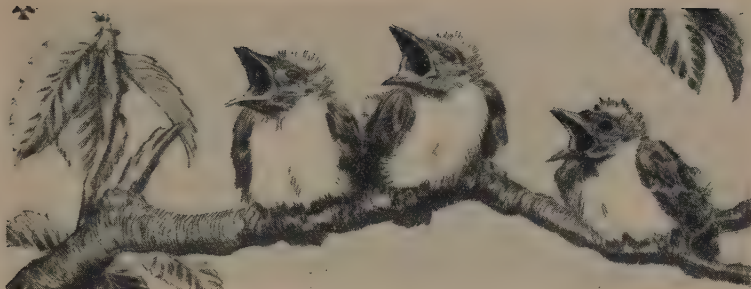
"On, on we go. Weeks pass. Still the same hot sun, the stifling air, the shining stream, the thirsty soil. Where is the queer river flowing? What is it doing? It flows slowly now.

"At length we see rounded housetops. The river runs under long bridges. It passes large cities. Then it divides and flows among low islands till it pours its water into a great salt sea.

"This is the river Nile that winds across a vast desert. Later we will see what the great stream does for the dry country. But now we must say good night, for already

"Day hath put on his jacket, and around
His burning bosom buttoned it with stars."

OLIVER WENDELL HOLMES



LESSON V

BROOK BASIN AND SYSTEM

"Hurry, Dick," called Chip. "The sun is up, but the sky is raining music. Hear the sweet notes patter down. I do believe that Redbreast is singing to the brook. Listen!"

"This little rill, that from the springs
Of yonder grove its current brings,
Plays on the slope awhile, and then
Goes prattling into groves again,
Oft to its warbling waters drew
My little feet, when life was new.

.

"Years change thee not. Upon yon hill
The tall old maples, verdant still,
Yet tell, in grandeur of decay,
How swift the years have passed away,

Since first, a child, and half afraid,
I wandered in the forest shade.
Thou, ever joyous rivulet,
Dost dimple, leap, and prattle yet;
And sporting with the sands that pave
The windings of thy silver wave,
And dancing to thy own wild chime,
Thou laughest at the lapse of time."

"Sing on, little robin," bubbled the brook. "The sweet notes sift down here like blossoms."

"Wait," whispered Bunny to the squirrels. "Red-breast is going to sing again."

"The same sweet sounds are in my ear
My early childhood loved to hear;
As pure thy limpid waters run;
As bright they sparkle in the sun;
As fresh and thick the bending ranks
Of herbs that line thy oozy banks;
The violet there, in soft May dew,
Comes up, as modest and as blue;
And the brown ground-bird, in thy glen,
Still chirps as merrily as then."

WILLIAM CULLEN BRYANT

"You seem to be thinking of days gone by, little robin," said the wild flower. "Are you sad this morning?"

"Oh, no! I was just thinking how long I have seen the rain rills play here on the slopes, and the rivulets run down from the springs. No wonder they are happy to come out of the cold ground. I wish the brooklet would tell us how they found the way out."

"Gladly," came a merry ripple. "We just ran along on a bed of clay till it came to the surface."

"But how did you know which way to flow?"

"The same way we know how to flow here," said the brook. "Isn't it odd that in this wide world there is no level land where the raindrops fall?"

"Ho, ho, Brooklet!" cried Dick. "Where are your eyes. Isn't our meadow just as level as a pond?"

The wild flower knew better than that. Had she not seen the ripples go dancing by all summer?

"Why doesn't the brook flow the other way, Dick?" she whispered softly.

"Chip, chip! hurrah for Posy!" rang out a merry voice. "Of course the brook could not run if the land were level."

"Is that so, smarty?" barked Dick. "Then I know where there is some level land. Here is a pond where the water stands still. The land under it must be level." And he blinked his bright eyes as if to say, "Now I've caught you."

But the wild flower asked sweetly, "Why doesn't the pond spread out more?"

"Because the banks hold — oh, I see!" said the honest squirrel. "The land must slope to the pond.

"The meadow slopes a little, or the brook could not flow. Then there would be no brook, no pond, — only a muddy field."

"Worse than that," added Bunny. "The rain would cover the land with water. All the plants, except water plants, would die."

"There would be no hills, no valleys, no streams," chirped Redbreast. "Poor Bunny could not dig a burrow, and I don't know what the squirrels would find to eat."

"Yes," added the raindrops, "if all the land were level, the salt sea would flow over it, and then — but we need not think of that, for the fields do slope.

"We raindrops know that the beds of clay and rock in the ground also slope. We ran along on a bed of clay till it came to the air and we had to come out."

"The drops must come from a lot of land to make a brook like you," said Daisy.

"Who can tell me how much land sends water to me?" asked the brooklet.

"All the land in our valley," piped Redbreast.



WHERE THE BROOK FLOWS INTO A HOLLOW

"All the land that slopes to you," thought Daisy.

"All the slopes down from our water parting," was Bunny's answer. "I mean all on this side of it."

Was either answer right?

"Is every basin inside a water parting?" queried Daisy.

"Every basin on the earth," said the brooklet. "Brooks, ponds, rivers, lakes, and even the oceans, all have basins."

Just then a leaf of a white oak came floating by.

"Can you catch it with your bill, Redbreast?" asked the brook. "Thank you."

"The edge of this leaf winds round it as the water parting winds round our valley.

"Now look at the many little veins that begin at the edge. See how they run together to make larger veins, till all join the midvein."

"I see!" shouted bright little Chip. "The leaf is like a picture of our valley.

"Many tiny veins, like the rain rills, start at the outer edge.

"The veins and the rills keep running together, till they all meet in the — what did you call it?"

"The small veins run to the midvein. Some call it the midrib of the leaf," rippled the brook.

"Then you must be the midvein of the valley," said Chip to the brooklet.

Dick was pleased with his little friend, and rubbed his cheek along the stripes on his side. "If there is any *dunce* in the squirrel family, it is not you, Chip," he said sweetly.

Chip puffed up as if he would burst, but kept still. He was very fond of Dick.

"All the veins in a leaf form a system," the brook then told the little group. "And all the streams that run together in our valley form a system, too. A brook basin has a brook system; a river basin, a river system. We may also have a lake system.

"Now set your wits to work and tell me how the basin of a brook differs from its system."

The wild flower was the first to speak. "The basin turns the water to the system."

"I think so, too, Daisy," said Dick. "I do hope you will grow here next summer. I shall look for you after the snow melts."

Daisy was happy. She nodded her head as if to say, "I will try."

Redbreast had been thinking of the brooklet's question, and with a pretty chirp she said, "One is land and the other is water."

"Yes," added Bunny, "slopes make the basin, and streams make the system."

"You have all done well, little sharp-eyes," bubbled the brook. "Now for the story."

"The sun is about halfway between east and west. If Redbreast should fly far southward to the land just under the sun, she would see row upon row of high mountains. Many of them have caps of snow."

"Are they in one family, like the streams in a valley?" asked Chip. "Did they grow there together?"

"They are in one long highland," said the brook. "But what of it, Chip?"

"I thought you were going to tell us they were in a system."

"So they are, little chipmunk. They are part of a mountain system."

"All along the east side of the highland many rivers flow down to low land. They keep joining, like the veins in the leaf, making larger and larger rivers."

"Now they enter a great forest, and from all sides other rivers flow in. The basin is so wide that Redbreast could not see across it if she were above the highest clouds. She could not fly across it in a whole day."

"The river is so wide that it looks like a lake, but it is so long that it seems to come out of the sky in the west, and run to the sky in the east.

"On, on, for days and weeks, it winds slowly over a vast plain. The forest about it is one of the largest on the earth, and the trees are so thick that the light of the sun can hardly creep in.

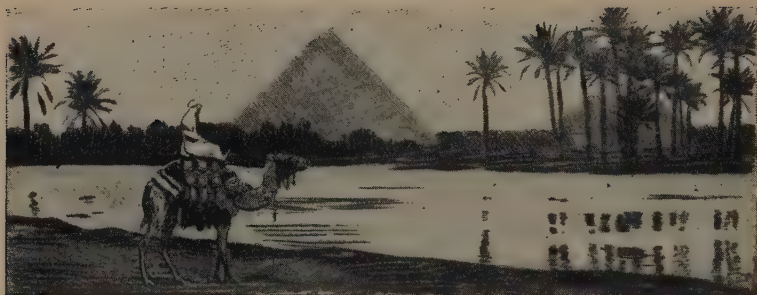
"At last the river pours its muddy water into the ocean, and the raindrops that fell on the far-off mountains are home again.

"This great river is the Amazon. All the streams that unite to form it make the Amazon system. It forms a network over the largest river basin on the earth. The main stream carries to the sea more water than any other river."

As the brooklet ended its story the sun went slowly down behind the low hills. The evening breeze came floating up the valley and seemed to whisper

"The day is done, and the darkness
Falls from the wings of night,
As a feather is wafted downward
From an eagle in its flight."

LONGFELLOW



LESSON VI

HOW SOIL IS MADE

"That is Redbreast singing again," thought Bunny, as he got out of his warm bed and stretched his legs. "But what is it that she says about the showers?"

"See the brooklets flowing
Downward to the sea,
Pouring all their treasures
Bountiful and free!

"Yet to help their giving,
Hidden springs arise;
Or, if need be, showers
Feed them from the skies."

ADELAIDE A. PROCTER

As Bunny peeped from his burrow his eyes grew big and bright. "It has been raining!" he said. "How

the water has cut the hillside! But here come Dick and Chip on the way down to the brook."

"Did you hear the robin sing about pouring treasures?" asked Chip. "All I can see is mud. Dick must be rich, by the looks of his paws."

"Here, you may have my treasures," said Dick, as he shook the mud from his feet.

"And mine too," added Bunny.

The little robin sat still. She had sung with all her heart, yet her good friends seemed to be making fun of her.

But Daisy was not. Her face was full of joy. The robin had been singing about something worth more than gold.

"Bunny," she said sweetly, "would you give all the mud in the world for all the gold?"

"Of course," cried Bunny and Dick at the same time.

"What would you do with the gold?"

"Buy sweet clover," said Bunny.

"And nuts," added Dick.

"But how could they grow if there were no wet soil? And how could I live?" rustled Daisy.

"Tb-b-b, tb-b-b," came a loud voice from the reeds by the brookside. "Who talks about taking away our mud? Tb-b-b, tb-b-b, toss him in, toss him in!"

"Bz-z-z, bz-z-z," hummed a bee. "Let the clover alone; bz-z-z, bz-z-z!"

Dick and Bunny smiled. "Stirred up quite a fuss, didn't we, over a little mud!"

Up to this time Chip hadn't spoken a word. But now he turned to the wild flower and said, "That drop of rain on your head looks like a gem."

"It is a gem, Chip. It is worth more to me than a diamond."

"Whew! more treasures," cried Chip. "But the drop does look like a gem in a crown of gold."

Then he turned to the brooklet and said: "How muddy you are, and how wide! Where did you get all the mud? What will you ever do with it?"

"Don't you see the muddy rills racing down the slopes?" bubbled the brook. "They are hard at work."

"Where the land is steep, they are cutting gullies, and bringing down the soil."

"See them roll the pebbles down, bumpety-bump!" broke in Chip. "Don't they wear them to pieces?"

"Look at a pebble," rippled the brook. "Why do you think it is so smooth?"

"The bumping would knock off the rough places, wouldn't it?" asked Chip.

"Yes; and the little pieces knocked off are — what?" queried the brooklet.

"I see," said Chip. "They are sand. But I should think the pebbles and larger rocks rolling along would crush the sand to powder."

"They do help, Chip. But wet sand has a coat of water over it, which seems to protect it. It is hard to make two wet grains of sand touch each other. Dry sand blowing along a shore, or over a field, bumps and bumps, and wears down to dust.

"But let us look at the rills once more. Try to find out where they leave the pebbles and where they leave the fine soil."

"I see," said Bunny. "The pebbles move only in the swift water."

"And the fine soil?" rippled the brook.

"Why, that is still going on," added Bunny.

"When I was on the way home last night," began Chip, "I saw many ant hills and earthworm mounds in the field. I don't see any now. The raindrops must have spread them out."

"Perhaps some of them were washed into the brook," piped Redbreast. "I hope not, for the work of the ants and worms would then be lost."

The brooklet seemed to smile. "Oh, my little rills

were busy last night, as well as the raindrops. And the work is not yet done. That is why I am so muddy.

"I am flowing toward the rapids and will soon be in the pond. Follow me and see what becomes of the fine soil. You may also throw some pebbles and sand into the rapids, and then watch closely."

Bunny scraped from the bank some gravel, with its pebbles and sand, and it fell into the brook just where it ran swiftly down a steep place in its bed.

"How muddy!" chirped the robin. "We can't see the bottom."

"Look here!" shouted Dick. "The pebbles are stopping at the foot of the rapids. The water is not swift enough to sweep them farther."

"And here is the sand too," cried Chip, "just below the pebbles. It is spreading out like a frog's foot."

"Perhaps the stream cannot carry it any farther," said Bunny. "In the pool just below the rapids the water moves slowly."

"Here goes the black loam!" piped the robin. "It is reaching the pond."

They all hurried to the spot, and there was the dark water flowing into the pond.

"Watch closely," bubbled the brook.

"The water is growing clearer now," said little bright-eyes. "The fine mud is settling on the bed of the pond."

"Most of it seems to settle near where the brook flows in, doesn't it?" asked Redbreast. "I wonder why it doesn't spread all over the bottom of the pond?"

"Perhaps the water is not swift enough to carry it," said the gray squirrel.

"You are right, Dick," bubbled the stream. "I must leave here nearly all the fine soil. Only the very finest can go on.

"But it is not the running of the water that keeps the mud from settling higher up. It is the rolling, mixing motion of the water. If you put soil in a pail of water and keep stirring it, it cannot settle."

"Do all brooks and rivers do this kind of work?" asked Chip.

"All," said the brook. "Grain by grain the rain and streams are brushing the hills into the valleys — yes, and the mountains too."

"Then by and by there will be no mountains!" cried Dick.

"Oh, yes!" was the answer. "Some mountains are growing all the time. But that is another story."

"Mountains growing!" That was too much for our little furry friends, but they kept still.

The brooklet went on: "All about our valley are places where the streams have been at work. See where the big stones have rolled down the slopes, after the rain and rills have washed the loam and sand from under them. And in some places my own shore is pebbly. The soil that dropped with the pebbles from my banks has been swept away."

Little Chip had been watching the mud settle in the pond. He was bristling with questions.

"Will the mud ever rise above the water?" he asked. "I don't see how it can."

"The water is very high now, Chip," said the brook. "If the mud fills to the top, and then the water goes down, this part of the bed of the pond will be dry."

"But if you keep bringing down mud and making dry land, you will fill the pond, won't you?" was the next query.

"Yes; after a long time there will be no pond here. The green place above the rapids shows where there was once a pretty pond."

"And will you flow through the new green spot, just as you do through that one?" asked the little chap.

"As long as plenty of rain falls I shall flow on. But let us look at the mud banks growing where the water flows into the pond.

"When mud banks grow to be dry land, they form a delta. Often the streams wind among parts of the delta and make islands.

"You can see that a delta is made of fine soil. Give it plenty of rain and it will be very rich if it is in a warm part of the earth.

"Grainfields and forests grow on some deltas. Great cities are built on others."

"This delta could never hold a city," chirped the chipmunk.

"No," rippled the brook. "But some deltas are at the mouths of great rivers. All muddy streams that flow into still water make deltas. The still water may be a pond, a lake, or even the great salt sea.

"Some parts of the sea have currents so strong that deltas cannot form. The fine soil, or silt, is swept away and cannot settle."

Daisy was puzzled. If all the fine soil was swept away from the fields, how could plants grow? Did the pink worms and the ants make loam just to have it washed away? Where, then, did the fine soil she used come from? She must ask the brook.

"Do the rills carry all the rich soil from the hills and fields to the brooks?" she asked.

"Oh, no!" was the quick reply. "The rain and the rills spread the soil all over the fields, but they carry some also to the brooks.

"A little rill starts to sweep along one of the rich heaps made by worms. It can do this while it runs fast. But when it comes to a level place, and the rill moves slowly, the rich soil settles.

"Many rills that start to carry fine soil sink into the ground. Of course the soil is left on the surface.

"Rills that run in the grass are held back and cannot carry soil very far.

"You can see that it is easier for the rills to brush soil along on the side of a hill than it is in the low land. That is why the soil is better in valleys than on hillsides."

"I never thought before how much is being done for us," whispered Chip to Dick.

The brooklet heard him and said, "But you and Dick and Bunny and Redbreast and Daisy help, too."

"What can I do?" asked the little wild flower. "I can only stand here all my life."

"You feed on the soil, the water, and the air. Then when your leaves fall, or your roots and stalk have

borne the blossom with its tiny seeds, you change to rich loam. Perhaps you help to feed your own baby seeds when the warm days come again.

"You think the worms help you. So they do. But you feed them with your leaves, and so help them. Then they give back the leaves, as loam, to your baby seeds."

"But what can I do to help?" piped little Chip.

"Many things," bubbled the brook. "You hide acorns and other nuts in the ground, or in the stone wall. Many a fine tree has grown where squirrels have stored food for the winter. You also bring soil up to the light and air.

"Think it over, little friends. You will find that all are helping in one great plan."

"There is one thing that puzzles me," said Chip. "Why do water plants grow in some places where you wind about, and not in other places? Right here the water is clear. Up there the grass grows in it."

"Go and find out what the plants are growing in," bubbled the brook.

The answer soon came back, "In mud."

"And why has it settled there?"

"I see," cried Chip. "Behind this bend the water is still."

"Yes; and at times, when floods come, a brook may spread far over its banks and creep slowly over the fields. Then the soil will settle and make the fields fertile.

"Rivers also spread soil in this way. Such fields are called bottoms, or flood plains.

"But floods do much harm too. They tear away the banks of rivers and often wash away whole fields. And they tear down bridges.

"We have more floods here now than when the hills were covered with trees. Part of the rain then ran down the limbs and trunks and went into the soil. Drops also fell slowly from the leaves. This rain helped to feed the springs in dry weather.

"More snow too would melt slowly in the woods. The sun could not reach it to melt it under the trees. The snow water had more time to sink into the soil and help feed the springs."

"You would like to see trees all over the hills again, wouldn't you, little brook?" asked Bunny.

"Oh, yes; the water used to flow more evenly here. When the trees kept so much rain in the hills, the water would rise a little in the rainy months and fall a little in the dry months.

"Now my banks cannot hold all the water that

rushes down after a heavy rain; and after weeks pass without rain, the fields are brown and bare. Then you may find here only a chain of small pools. At times the bed cracks under the hot sun, and not a drop of water can be seen."

"What can the fish do then?" asked Dick.

"Ah, Dick," said the brooklet, "there used to be many pretty trout here, but they cannot live here now. Too bad!

"But it is growing late, and you know you are to have the story of the Nile."

"Yes, you were going to tell us about its work in the desert," rustled the wild flower. "I am glad I do not live in a desert."

So the brooklet began.

"Once more we will visit the high mountains. The rain is heavy, and the snow is melting on the tall peaks. Small streams rush and foam down the slopes.

"It is early. The sun is not yet up. But a very bright star shines low in the east. It is the Dog Star. How happy the poor people far down the valley are to see it, for now the dry banks of the Nile will — but wait! I am ahead of my story.

"Let us watch the streams as they foam down to the great river. It seems as if the banks could hold no

more. How the river roars as it plunges down the rapids! What will become of the flood that is sweeping into the long valley?

"Let us follow! Now we can see the parched banks once more. The sun at noon is almost over our heads. How hot and dry the air feels. Oh, if it would only rain!

"But look! the river is still rising, — higher and higher. Now it creeps over its banks. Where will it stop? What will become of the poor people?

"See! they are dancing and shouting for joy. What can it all mean?

"Wider and wider flows the stream. The dry fields are under water. But the river is gone. In its place is a long, wide lake.

"Still it spreads. Will it never stop? June passes. The July sun beats down. Still the water rises. August is here, and now the bottom of the valley is like a great sea.

"At length the water begins to go back. Day after day it settles. September comes and goes; and if we were there on a bright October day we should see the river flowing in its old bed once more.

"We look again for the dry fields along the banks. They are not here. For miles and miles on both sides

of the strange river, new soil covers the valley, and the ground has plenty of water.

"Now we know why the people were so happy. The land is ready for the seed. Soon the grain, the sugar cane, the cotton, and many other plants will wave over all the valley. There will be food for the next long dry season, and plenty of cotton for making cloth.

"Every year this strange river overflows its banks when the Dog Star rises just before the sun. Then the rain and snow in the highlands send down the flood to flow over the valley bottom.

"The Nile is doing just the same work as you see in our valley. That is why your friend the brooklet is so muddy today.

"Now good-by till tomorrow."

"The brook must learn all this by riding the merry-go-round," thought Chip, as he ran for the old stone wall as fast as his legs could carry him.



LESSON VII

FORMS OF WATER

“What has become of my pool on the rock?” chirped the robin, when the happy band came down for a story next morning.

“Yesterday I took a bath in it. Now it is gone. It could not run out. It was in a hollow. Where has it gone?”

“How about the story the brooklet told us?” asked Daisy. “Wasn’t it like this? ‘“Wait for me,” cries one little drop; and where do you think it is? It has fallen into a buttercup and cannot get out. A sunbeam will help it next day, so the other drops hurry on. They cannot stop even if they wish.’”

"I see!" sang the robin. "The sunbeams have been at work here. They have carried away my bathing pool. Oh, well, I will dip in the brook, if I may."

"Welcome," rippled the stream. "But listen. A piece of ice on the rock would soon melt, and form a pool. Then the water would change to vapor, and fly away. We could not see it going, but the rock would be dry."

"Ice, water, vapor!" squeaked Chip. "Just like hard, soft, *puff*! Does the vapor ever become ice again?"

"Oh, yes," began the brook, "it —"

But little Chip broke in with, "Another merry-go-round, another merry-go-round!"

When merry Chip had had his fun, Dick turned to the brooklet and said: "This morning the grass was wet. Now it is dry. Where does the water go?"

"Sunbeams again!" shouted the frisky chipmunk. "Santa Claus ought to hire them to make his toy balloons."

The brook only rippled. She liked little Chip with his jolly ways and his funny, squeaky voice. But she must answer Dick's question.

"Yes, the sunbeams take the dew away, for that is what was on the grass when you got up."

"But I didn't see the dew going away," said Dick.

"No, it may float away in the warm air unseen till it is cool enough to form a cloud, or water dust."

"It's just like our breath, isn't it?" asked Bunny. "We can see it on a cold day but not on a warm day."

"Yes, there is vapor everywhere in the air," the brook went on; "you can see it now, high in the air, where it is cold. That fleecy speck just overhead may be made of the dew that rose this morning; but it may be made of vapor brought by the wind from the sea."

Redbreast was tuning her pipes. All kept still. Then out floated this pretty song:

"Beautiful cloud! with folds so soft and fair,
Swimming in the pure quiet air!

.

Beautiful cloud! I would I were with thee
In thy calm way o'er land and sea."

BRYANT .

Chip tried to clap his tiny paws, but they were too soft to make any noise.

Then Daisy asked, "Can you tell us, Brooklet, why water changes to vapor?"

"We only know that warmth or heat changes it.



MUCH VAPOR COMES FROM THE SEA

We do not know why. We know also that when a cloud is chilled enough, it forms drops of rain, but we do not know why.

"Here is a strange story for you. The heat that changes water to vapor is not lost. It flies away with the vapor.

"High in the sky some of this heat is taken by the cold air. It may be taken from vapor that we are not able to see; but when enough of the heat is lost, we can see a cloud. Then when more is lost, the cloud may change to rain."

"Is all this heat wasted?" asked the robin.

"Oh, no!" replied the brook. "The hot sun must beat down many days on a pond to make it dry up or go up as vapor. This shows that it takes a great deal of heat to form the vapor.

"When the vapor changes to drops of water, it gives out to the air just as much heat as it took in. This helps to warm the high air."

"I should think the vapor would freeze away up there," squeaked a well-known voice.

"At times it does freeze and form flakes of snow," rippled the brook. "The big flakes that we see are made of many small ones that meet and stick together."

"But I have felt drops of ice pelting down, too," added the chipmunk, looking up to the sky and creeping under Dick's side.

"Yes, they are hail," added the brooklet. "Bits of ice form high up in the air. They start down and perhaps partly melt. Then the air may whirl them up again, and the vapor puts a thin coat of ice on them. Once more they start down, partly melt, and are swept up to get another ice-coat.

"This goes on till the ice-drops are too heavy to be swept up, and then they fall as hailstones."

"And they hurt too, don't they, Dick?" asked the little chap.

Dick nodded, "Yes!" Then the brook went on.

"It takes heat to melt hail and snow, to change them to water. Then if the water freezes, it must give out all this heat."

"I thought that water froze on cold nights," piped Redbreast.

"It does, little robin," the brook replied. "But when it freezes, it helps to warm the air, or whatever is round it."

"This is all very odd," said Dick. "See if I get it right. Heat from the air will melt ice; when the water freezes to ice, it gives the heat back to the air. Isn't

that funny? As the water grows cold, it gives heat to the air. As the water grows warm, it makes the air cooler."

"That is right, Dick," bubbled the brook. "Suppose that you and Chip had an acorn. If Chip took it, you would lose it. If you took it, Chip would lose it. You could not both have it at the same time.

"Think of the acorn as the heat. If the ice takes it, the air loses it. Then the cold air freezes the water again by taking away the heat."

"It doesn't take much heat to melt a hailstone, does it?" asked Chip. "I took one in my mouth once, and it melted."

"How did it feel, Chip?" asked Daisy.

"Cold!" said Chip. "It bit my tongue."

"Why did it feel cold?" rippled the brook.

"Just because it *was* cold. All hailstones are cold."

"What became of the hailstone on your tongue?" asked Bunny.

"It melted, of course."

"Did the hail on the ground melt as quickly?" piped Redbreast.

"Oh, no!" said Chip, and he began to think.

"I have it!" he cried. "It melted because it could

get heat out of my tongue. I surely felt it going. Why, of course, that is why my tongue felt so cold."

The brook now took up the story.

"When the ground is white with snow, and the sun comes out, the air often grows chilly. It loses heat to the melting snow. The snow water has the heat.

"A cloudy night is not likely to be as cold as a clear night. As the vapor grows cold the air must grow warmer. A clear night has but little vapor to give out heat."

"Do clouds keep the earth warm?" asked Bunny.

"Yes, when the air grows colder," bubbled the brooklet. "Then they give out warmth.

"The earth uses several kinds of blankets. The clouds are one. Ice is another."

"Ice a blanket!" piped Chip. "Not for me."

"Snow is another blanket," the brook went on.

"Who ever slept under a blanket of ice or snow?" came the same piping voice.

"You have, Chip. And so have I. And so have the grass roots," added the brooklet.

"Have you ever felt the cold wind blowing in the stone wall? Did the cold wind blow there when the wall was under the snow?"

Chip was thoughtful.

"The cold air may freeze the brook over, or the pond. The ice forms a blanket, and the rest of the water freezes slowly if at all.

"Snow falls on the field and makes a blanket for the roots and seeds in the soil. At night the air may then be bitter cold, but it cannot reach the soil."

"Now I shall always like the snow song my mother taught me," chirped the robin. "I will sing it for you.

"Fill soft and deep, O winter snow !
The sweet azalea's oaken dells,
And hide the bank where roses blow,
And swing the azure bells !"

WHITTIER

"Bravo! Redbreast; bravo, bravo!" they cried.

Dick was still thinking of the dew. "Does the dew fall out of the sky, like rain?" he asked.

"When vapor in the air floats against anything cold, it changes to water and sticks to the cold object. It may float against cold stones, cold grass, the cold roofs of houses, cold boards on the ground. This is dew, and we often see it on the grass in the morning.

"At times the vapor may float against objects cold enough to freeze it and make white frost."

"Then frost is a cousin of the snow, isn't it?" asked little Chip. "And the dew is a cousin of the raindrop."

"I wish you would sing us a song about the frost, Redbreast," said Bunny.

And the cheery robin sang :

"The Frost looked forth one still, clear night,
And whispered, 'Now I shall be out of sight,
So through the valley and over the height,

In silence I'll take my way.

I will not go on like that blustering train,
The wind and the snow, the hail and the rain,
Which make so much bustle and noise in vain,
But I'll be as busy as they.'

"Then he went to the mountain, and powdered its crest ;
He climbed up the trees, and their boughs he drest
With diamonds and pearls, and over the breast

Of the quivering lake he spread
A coat of mail, that it need not fear
The downward point of many a spear,
That he hung on its margin, far and near,
Where a rock could rear its head."

HANNAH FLAGG GOULD

"Prettily sung," bubbled the brook. "Jack is very lively in his soft white fur. He runs up the hills and down the vales. He peeps into the windows and covers them with silver ferns. He dresses the grass in snowy velvet. He hangs spears on the trees and sprinkles

diamond dust in every nook and corner where vapor folds its wings and falls asleep as dew.

"He even creeps into the dark soil and pricks it to pieces with his icy needles. He weaves the icy blanket over the pond. Oh, Jack is a lively lad."

"Too lively for me," squealed Chip. "One day last winter I went to call on Dick. It was very cold and I ran as fast as I could, but Jack Frost caught up with me and bit one of my toes. He bit it so hard that it came off later." And the little fellow held up a tiny foot, to show a stub where a toe was gone. All felt very sorry for him. .

"You ought to have stayed under your snow blanket in the old wall," said Daisy, smiling. Chip nodded and smiled back to her.

"May I ask why ice floats?" said Dick. "It is hard, like a stone, and a stone sinks."

"Didn't you know, Dick, that a stone doesn't sink because it is hard?" asked Chip. "It is just heavy."

"I will tell you why the ice is at the top of a pond," began the brooklet.

"As a piece of iron cools it grows smaller, and the small piece weighs just as much as it did when larger. But a piece of warm iron does not weigh as much as a piece of cold iron *of the same size*.

"Anything that floats makes a hole in the water. The water pushed out of the hole *weighs just as much* as the thing that floats.

"A body sinks when it is heavy but not large enough to push out its own ^{weight} ~~size~~ of water. We then say it is *heavier than water*, — of its own size.

"Now, little folks, look round and find things to toss in the water. Find out which are heavier, and which are lighter than the water."

In went pebbles, leaves, sticks, sand, a piece of glass, a feather, a nail, a bit of moss, and many other things. And all the time the merry voices were calling: "The pebble sinks!" "The leaf floats!" "The sand is heavier than water!" "The feather is lighter!"

"Now come here," bubbled the brook, "and let us chat a little more.

"You all know that the warm, light water is at the top of the pond. In winter the cold air chills the top of the pond. The water shrinks."

"Then it must sink, like the iron," cried Chip.

"Yes, it sinks. More water at the top grows cold, and that sinks too. This may go on till all the water in the pond is very cold."

"But the top water must always be lighter than what is below," piped Chip, "or it would not float."

"Stick to it, little chipmunk," bubbled the brook. "The top water sinks while it shrinks.

"But when the pond is only a little warmer than the cold that freezes it, a change takes place. Then as the top water grows colder it swells."

"And grows lighter," put in Chip.

"Yes, grows lighter, and then the coldest water stays at the top," added the brooklet.

"The cold air may then chill the top of the pond more and more, but the top water will stay at the top *till it freezes.*"

"Is that why our pond freezes at the top?" asked Dick.

"That is one reason," replied the brook.

"But if the ice shrank, it would sink, wouldn't it?" piped the robin.

A ripple went up and down the brook at the bright answers. Then it went on.

"But the ice swells when it freezes!"

"Then of course it floats!" shouted Chip.

"This is one of the curious facts in nature, that just before freezing, the water should swell and grow lighter, and also that the ice should swell when freezing. If it were not for this, the ponds, lakes, brooks, and rivers would freeze first at the bottom. Open to

the cold air, they might freeze to solid blocks of ice, from the bottom to the very top."

"Then what would become of all the fresh-water fish?" asked Bunny.

"They would die," said the brook quietly.

Then it asked: "Did you ever see the ice needles shoot back and forth over the pond, making the network of thin ice? Soon a smooth sheet is woven. This becomes thicker as the cold spell lasts.

"When the ice melts, many stars appear in it. They look like snowflakes, with six silver rays meeting in points that glisten like dewdrops."

"If you tell any more pretty stories, I may not wish to fly south next winter," chirped the robin to the brooklet.

"When the cold days bring the snow, where will you find food?" asked the dimpled stream.

"I am here all winter," shouted Bunny, "and I see all the pretty snow views. I live in a deep hole on the side of the hill, not far from Dick and Chip.

"The children often come there to coast on sleds. They start on the ridge where the raindrops parted last April. Such sport! The air rings with merry shouts, as they spin over the snow, singing the snowflake song. The words run like this:

THE BROOKLET'S STORY

"Flakes of snow, with sails so white,
Drifting down the wintry skies,
Tell us where your route begins,
Say which way your harbor lies?

"In the clouds, the roomy clouds,
Arching earth with shadowy dome,
There's the port from which I sail,
There is tiny snowflake's home.'

"And the cargo that you take
From those cloudy ports above —
Is it always meant to bless,
Sent in anger or in love?

"Warmth for all the tender roots,
Warmth for every living thing,
Water for the rivers' flow,
This the cargo that we bring!'

"Who's the Master that you serve,
Bids you lift your tiny sails,
Brings you safely to the earth,
Guides you through the wintry gales?

"He who tells the birds to sing,
He who sends the April flowers,
He who ripens all the fruit,
That great Master, he is ours.' "

E. A. RAND

"Thank you, Bunny," bubbled the brook. "Those are very pretty verses. Here is a verse I heard long ago, when the flakes were sifting down.

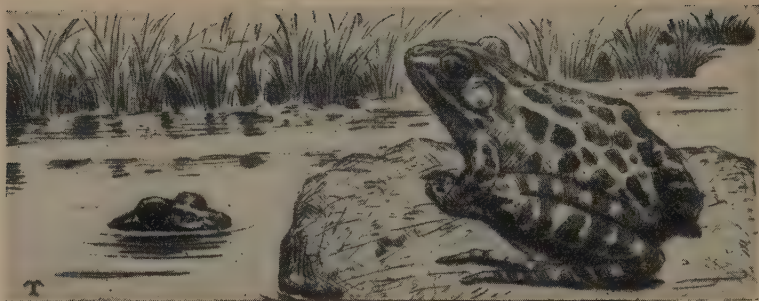
" Out of the bosom of the Air,
Out of the cloud-folds of her garments shaken,
Over the woodlands brown and bare,
Over the harvest-fields forsaken,
Silent, and soft, and slow
Descends the snow."

LONGFELLOW

"Now, little friends, you must hurry home or it will be dark before you find your suppers. Good night!"

"Good night!" rang the cheery answer, and off they went, all but Daisy and Redbreast.

The robin flew off to the plowed ground to find a worm or two. There were three hungry mouths to fill, and she knew she would find them wide open and waiting.



LESSON VIII

WHY THE WIND BLOWS

"Oof, how cold the air is this morning!"

Dick's pearly teeth shook as he spoke, and the gray hair stood up like bristles all along his back.

Poor little Chip was just a ball of trembling fur as he squeaked, "I wish we had only warm south winds here."

"Oho, my pretty grumbler!" said Bunny, "was it not the north wind that gave us the raindrops last April?"

"Listen!" called Dick. "What is the brooklet singing?"

"Whichever way the wind doth blow,
Some heart is glad to have it so;
And blow it east or blow it west,
The wind that blows, that wind is best.

"My little bark sails not alone,
A thousand fleets from every zone
Are out upon a thousand seas;
And what to me were favoring breeze,
Might dash some other with the shock
Of doom upon some hidden rock.

.

"So whichever way the wind doth blow,
Some heart is glad to have it so;
And blow it east or blow it west,
The wind that blows, that wind is best."

CAROLINE A. MASON

So soft the song, it seemed to float upon the air like snowflake music.

The spell was broken when the cheery robin called out: "Come, let us go down and ask the brook why cold winds blow. I fear that winter is not far off."

"It will be a long story," the brook said, "but you can all help tell it.

"First, let us ask which is the lighter, water or air?"

"We all know that," answered Bunny, "don't we, Chip? The air floats on the water."

"Vapor too must be lighter than water," added Dick. "And it must be lighter than air, too. The clouds float in the air."

"In winter we can see the vapor rising in warm

breath," said Chip. "It floats away like dust — *water dust*," he added with a twinkle in his eye.

"One day the dry grass in our field was on fire," piped the robin. "I tried to fly over it, but the hot air came rushing up and almost stifled me. It lifted thick smoke and burning leaves higher than the tops of the trees.

"I flew down and found the air cooler when I was not over the fire. I flew round and round it, and I could feel the cool air flowing into the flames."

"Of course air could not float up over the fire," said the brooklet, "unless the air round it was heavier. When a piece of wood floats upward, the water is pushing it. When hot air rises, heavier air must be flowing under to push it up. Robin felt the cold air, and you can all feel it if you ever go near a bonfire."

"Once I sat on a limb near a fire, and the air was hot," barked Dick. "I didn't feel any cold air coming in. The heat singed my fur."

"Yes, but you were up on a limb," said Redbreast. "The cool air flows in near the ground."

"Of course you all know that a wind is moving air," began the brook. "If it moves slowly, we call it —"

"A breeze," shouted Chip.

"If it moves very fast, what do we call it?"

"A gale," piped the robin. "I have to stay in the trees when a gale is blowing."

"Isn't a strong wind a storm?" asked Chip.

"Yes," bubbled the brook, "sailors call a gale a storm; but we nearly always think of a storm as a strong wind with rain or snow."

The little wild flower was puzzled. She had stood out in breezes and gales when there were no bonfires that she knew of. So she asked the brook about it.

The brooklet smiled to her and said: "We do not have to have a fire to make the air move. Whatever makes the air lighter in one place than in a place near it will cause the air to flow.

"A bonfire will do it. A hot, sandy field will do it, or a hot rock."

"But why does the air flow when one place is hot and another near it is cold?" asked Dick.

"In some way, we do not know how," began the brook, "the earth pulls everything."

"Everything?" broke in Chip. "Does it pull balloons and hot air?"

"Wait, Chip," the brook bubbled, "we shall see that the earth pulls even the hot air, balloons, and high clouds.

"When we try to lift anything that the earth pulls

hard, we say it is heavy. It pulls iron, rock, water, and lead very hard. They are heavy.

"It does not pull air very hard, or feathers, or fluffy snow. They are light.

"Some things that it pulls do not flow like air and water and do not move unless they are on a steep slope. Then a rock, or a piece of wood, or sand may slide but not flow."

"But we can pour sand out of a pail," said Chip, with a puzzled look.

"Yes, or apples, or pebbles," laughed the brook. "We can also make a heap of apples, pebbles, or sand, but not of water. Sand may slide, but it does not flow like water or air. The grains of sand slide or roll when they are not held up. Cold sand will roll as well as hot sand, but a pile of cold sand will not flow under hot sand and float it upward."

"Tell us, please, little brook, why the cold air flows under the hot air," said Daisy.

The brooklet waited. It was hard to tell this in simple words. Then the brook tried to make it clear by saying, "The earth pulls the heavy under the light; the light floats on the heavy.

"It is the same force that pulls the rock down into water. The same force pulls the heavy water under

the light wood. It pulls water harder than it pulls air, and so the air floats. It pulls cold air under the lighter warm air.

"We do not know much about this force, but we see and feel some of the work it does. If we lift a stone, we feel the pull of the earth on it. If we let go the stone, we see it fall.

"We call this force gravity. It makes the raindrop fall and the brook flow. It keeps things from flying off the earth, as mud flies off a cartwheel. It pulls down the air that makes the lighter vapor float up. It pulls the snowflake and the hailstone down because they are heavier than the air."

"Why are you so still, Chip?" asked Daisy.

"If the heat comes from the sun, I can't see why all the air is not heated alike."

"That is so," added the wild flower. "And I can't see why the air up in the sky is not warmer than it is down here."

"I should think that the top of the clouds would be very hot," added Redbreast. "We had better ask the brooklet."

"Let us try to find out how the air is heated," said the brook. "This morning the air was cold; now it is warm, very warm."

"It must be the sun," broke in Chip. "The nights grow cold now when the sun goes down. And the air under that tree is not so warm as it is here in the sun."

"Yes, we go out in the sun to get warm, don't we?" added Bunny. "But how do you find the air when you fly high in the sky, Redbreast?"

"Much cooler than it is down here," chirped the pretty bird. "It is even cooler on the top of that tall tree than it is down here."

"Huh!" grunted Dick. "The nearer we go to the hot stove, the colder it is." And he looked up at the big stove in the sky.

"This is what I should like to know," piped Chip. "Why doesn't the sun heat all the air alike? Over in the meadow the air is cool. Over in the sandy field it is hot. On this big flat rock it is hot."

"I think the heat must come from the earth," chirped the robin. "The higher I fly the colder it is."

"How can that be?" asked Bunny. "My burrow is cool all day."

"But if the sun heats the air, why is it so cold up in the clouds?" asked the robin.

"I don't know," was Bunny's honest answer. "But if the heat comes from the earth, why is the air cooler when a cloud hides the sun?"



"IT IS COOLER UP HERE," SAID DICK

"It does look as if the clouds stop some of the sun's heat on its way down," said Chip.

"Wait a minute!" cried Dick, and up he ran into a tall tree that leaned over the sand pit. "It is cooler here than down near the sand, but it is still cooler when I go into the shade of the leaves."

Then the bright little chap added: "Oh, I see! The sun heats what it shines on. If it shines on my back, I feel the heat. If it shines on the leaves over me, they stop the heat.

"But I don't see why the air grows cooler as I climb the tree. It looks as if heat must come from the earth, yet there is Bunny's cool burrow and my own cool nest."

"It looks to me as if heat must come from just the part of the earth the sun shines on, and not the part in the shade," said Bunny, slowly.

"I believe Bunny is right," cried Chip. "The sun heats what it shines on. It heats the stones, the sand, the water, — everything it shines on. Then the things that get heat from the sun warm the air."

"Don't you see that what I said up in the tree is true?" said Dick. "The air grew cooler as I went up, away from the earth. Then I felt the sun warming my back when it was shining on me; but under the leaves

I felt cool because the sun didn't strike me there, and I was cool because I was far above the hot sand pit."

"But, Dick," asked Daisy, "why is the air cool under the tree, close to the earth?"

Dick was puzzled. Then his eyes grew bright as he answered: "The air close to the ground under the tree is cool because the sun doesn't shine on that ground. It is just what I said, isn't it? — The sun heats what it shines on."

"Then, my big squirrel," said the robin, "why doesn't the sun heat the air at the top, way up in the sky, and leave the air here very cold?"

"That is too hard for Dick to answer," bubbled the brook. "It took a long, long time for even the wisest on the earth to find that out. Let me tell you what I have heard.

"The sun sends out very tiny waves called rays. They pass through *pure* air easily and do not heat it or light it; but when the tiny waves strike the earth, or what is on it, they are changed to heat and light.

"If the rays fall on a rock, they heat it; or on sand, water, grass, trees, or soil. But this heat is not like the rays; it can warm the air just as a bonfire can. Of course the air close to the earth feels the most

warmth. As we go up we find that the air gets less and less of it. We are going away from the heater."

"But my back felt warm up there in the sunshine," said Dick.

"Yes," replied the brook; "many rays struck your back and were changed to heat and light."

"Do all the rays come through the air to the earth?" asked Bunny.

"No," bubbled the brook. "The dust and the clouds in the air stop some of the rays and change them to heat and light up there. The pure air cannot stop any. The dust and clouds catch about one out of every three. Then they help to warm the high air.

"Let us understand this clearly: The earth gets heat from the sun's rays and then gives it to the air. Our light also comes from the rays, after they have been changed by clouds, dust, rocks, and many other things."

"The sun shines over all our valley, but some parts are warmer than other parts," said Dick slowly, as if thinking aloud.

"When you come out to warm your toes in the morning, Dick, where do you like to stand?" asked the brook.

"On the big flat rock when the sun shines on it,"

said Dick. "But when the sun goes down, the rock soon grows cold, and then I sit on a stump."

"If the day is very hot, where do you like to go to cool your toes?" was the next question.

"Over to the green field," was the answer. "The green grass never feels as hot as the flat rock."

The brook seemed to wait for all to think a while, and then asked, "Now do you see why the air is warmer in some places than in others?"

It was so clear now, they all tried to speak at once. A happy ripple played over the brook.

"Wait, wait!" it bubbled. "One at a time. Now, let us hear from Chip or he will burst."

"When the sun shines, the air over the sandy field grows hot, but it cools quickly at night."

"Daisy?"

"Back of me is a flat rock. In front of me is the brook. The sun heats the rock quickly, and that heats the air. The air over the brook then feels cool. But at night the air over the rock is cold, while the air over the brook is only cool. It really feels warm then."

"Now, Bunny?"

"The clover field for me when the sun is hot and I am hungry. But I like to feed in the moonlight."

"Dick?"

"Of course I go to play in the nut trees. Some of my food grows there. On the way I cross the sandy field. It is very hot in the sunshine but cool in the evening."

"Now, Redbreast?"

"When I fly south, and when I come back north, the air does not feel the same everywhere. In one place, going and coming, I follow a long river all day. Just over the water the air is cool, and never hot."

"Is that because the water itself is cool?" asked Chip.

"I think so," chirped the robin, as she went on telling about her journey. "The water seems to change very little. My morning sip is about as warm as the noon and evening sips. Of course the air over the river may come from the land, but when the water is cool it must help to cool any hot air touching it. And when very cold air comes over the river, the cool water must help to warm it. Am I right, Brooklet?"

"Yes. Water grows hot or cold very, very slowly. On a summer day the pond warms a little when the sun is hot. At night it cools a little."

"Then it is not like the sandy field, is it?" asked Bunny. "The air over the sand is cool soon after the sun sets; and it is the first to warm up in the morning."

"Tb-b-b, tb-b-b, I wouldn't live there!" cried an old green frog. "Nor I either, pr-r-r, pr-r-r!" sang a little leopard frog.

"Why not?" squeaked Chip, laughing.

"Too hot, too hot, too cold, too cold, tb-b-b, tb-b-b!" said greeny.

"Too dry, too dry, pr-r-r, pr-r-r!" trilled spotty.

"I think you are right," was Chip's answer. "But I shouldn't live in the pond, either. Too wet, too wet, thr-r-r, thr-r-r!" And Chip tried very hard to roll his tongue and trill.

"Your pretty paws were not made for swimming, Chip," said Daisy, nodding.

"Nor greeny's webfeet for running up trees," laughed Chip. "But tell us, Brooklet, why the frogs like the pond."

"Why does Dick like the oak tree, and Bunny the clover field?" asked the brook. "The frogs like the pond for another reason. They have little lungs, but they breathe also through the skin when it is wet."

"Can't they breathe through the skin when it is dry?" asked the puzzled little squirrel.

"Only when it is wet," was the answer.

"How do frogs keep the skin wet when the pond and the brook are frozen?" piped Redbreast.

"Before the ice forms, the frogs have begun their long sleep. They dig down into the mud and sleep till spring wakes them."

"Just like bears!" barked Dick.

"Who ever heard of a bear digging into mud to sleep?" chirped the saucy chipmunk. Of course the little rogue knew what Dick meant.

"You can't say much, Chip," said Dick. "You go to sleep when winter comes and don't wake up till April. How do you do it? How do you get to sleep?"

"I don't know," piped Chip. "When the very cold days come, our family goes to its room under the ground and stays there. We eat and sleep, day after day, and grow drowsy. At last we sleep, and we do not wake till spring comes. Strange, isn't it?"

"Yes, very strange," said Dick. "I have a little touch of that myself. In winter I sleep two or three days at a time if the air is very cold, but most of the time I am up and round."

"I have to be awake or starve," whined Bunny. "My wife and I have no store of winter food."

"A wide-awake chap like you, Bunny, ought to lay up food for winter," said Chip. "Why don't you do it?"

"We don't need the food till winter comes," was Bunny's answer, "so we don't think to store it up. We can get all we need in the fields. And when the snow falls, all we can do is to get enough to eat from day to day. That must be why."

"Poor Bunny," thought Chip, "how much better it would be for his family if he laid up some food for the cold winter days. Now he has to go out where the foxes are likely to catch him. Poor Bunny!"

"Very strange, very strange!" bubbled the brook. "In the winter our pond often goes to sleep. But we were chatting about winds, and we have drifted away.

"Let us run over what we have found.

"Round us are trees, bushes, grass, sand, rocks, and water. Some of them heat quickly and cool off quickly. Others heat slowly and cool off slowly. All of them help to warm or to cool the air. Some give out a great deal of heat; others give but little.

"Now we see why the air is warm in some places and cool in others."

"Wait, wait!" cried Chip. "I see why the air moves."

"And I do, too!" chirped the robin.

"And I!" "And I!" "And I!" cried the others.

Now, what do you think they told the brooklet? If ripples are smiles, the brook was surely smiling with joy.

"To-hoot-to-hoo! Hoo-hoo-hoo-hoo!" came a sound from the apple tree.

Bunny knew the sound too well. Many a time in the moonlight he had run from the big owl. Now he crept close to the gray squirrel.

"To-hoot-to-hoo! I know something, too!" cried the owl.

The old owl spoke as if his mouth were full of hot pudding, but the little friends made out a story like this:

"Last night I flew down to visit a friend of mine that lives in a hollow tree close by the sea. As we flew round, looking for little rabbits and chipmunks, I could feel the cold air flowing from the land to the sea."

"Rabbits and chipmunks!" and Chip's teeth rattled, he was so scared.

"The next morning," the owl added, "the sun was high in the sky when I flew back here. The breeze came with me. The air had turned and was flowing from the sea to the land.

"What do you think of that? To-hoot-to-hoo!"

"What do you think of it, Chip?" asked Dick.

But Chip was nowhere to be found. At last the robin saw one tiny bead eye peeking out from under a stone.

Just then a little patch of brown and white fur was seen trying to squeeze under an old stump. It was Bunny. He and Chip had no wish to tickle the crop of the old owl.

"Come out, little friends," called the robin. "The owl doesn't often fly when the sun is up. He is in the hollow tree, and he will not be out before night."

"I'll be on the lookout for him," said Bunny, as he came up trembling.

"You may be sure I'll not show my nose after dark," added Chip.

Now that all were quiet the brooklet went on telling about the wind.

"Do not forget that cool air will flow under warm air and lift it. The pull of the earth makes it do that.

"At night the sand and other land give off their heat quickly and grow cold.

"While this is going on, the sea is cooling very slowly. It changes but little all night, and of course the air above it is thus kept from growing cold.

"What must take place when the air over the sand is cold and that over the water is warm or only cool?"

"Just what the old owl told us," piped Chip, squinting his eyes toward the hole in the apple tree.

"And when will the air turn and flow back from the sea?" asked the brooklet.

"When it grows warm and light over the land," was Daisy's answer.

"Yes," bubbled the brook. "We call it a land breeze when it blows off the land, and a sea breeze when it blows off the sea.

"Now tell me when the sea breeze blows."

"Just a minute!" squeaked the little chipmunk. "That can't be so. We all have seen the west wind blow two or three days at a time."

"And winds often blow across our valley, over the clover, the sand, the pond, and everything else," added Dick. "That is true, isn't it, Bunny?"

"Of course it is, Dick. At this very minute the wind from the west is blowing over the whole valley, — over the sand, the clover, the pond, and all."

There was a hush. All the little friends waited for the brooklet to answer.

"Our sandy field and clover field and pond are

small. When the air is calm, they may set it in motion. They may make a little breeze flow back and forth.

"Out in the big world are great regions of ice and snow, hot lands where the sun is nearly overhead at noon all the year, vast seas that cover three fifths of the earth, cool forests that seem endless, fields that Redbreast could not fly across in a day, and thousands of miles of sand lying bare under the sun.

"All these set strong winds to blowing, and they sweep along with them the little breezes that try to start here.

"Later you will study about these places that make the great winds blow; but now you know *why* they blow, and that is what you asked me."

"Little brooklet," said Chip, "I wish we could all travel far and wide, as your raindrops have. I am only a little striped chipmunk, and my whole world is in this valley. But you are kind to us, and you let us look far, far away with your eyes.

"I used to wonder if the wind were alive," added the little fellow. "It seems to sing in the tree tops and whistle over the hills."

"It does seem to call to us," added Bunny. "Perhaps it is trying to tell us about the wide, wide world."

"Yes," rippled the brooklet, "it may be.

"The wind has a language, I would I could learn !
Sometimes 'tis soothing, and sometimes 'tis stern,
Sometimes it comes like a low sweet song,
And all things grow calm, as the sound floats along ;
And the forest is lulled by the dreamy strain,
And slumber sinks down on the wandering main ;
And its crystal arms are folded in rest,
And the tall ship sleeps on its heaving breast."

LETITIA LANDON

"That is very pretty, little brook," chirped Red-breast. "Once I heard another song about the voices in the wind. It runs like this :

"A wind came up out of the sea,
And said, 'O mists, make room for me.'

"It hailed the ships, and cried, 'Sail on,
Ye mariners, the night is gone.'

"And hurried landward far away,
Crying, 'Awake ! it is the day.'

"It said unto the forest, 'Shout !
Hang all your leafy banners out !'

"It touched the wood-bird's folded wing,
And said 'O bird, awake and sing.'

"And o'er the farms, 'O chanticleer,
Your clarion blow ; the day is near.'

"It whispered to the fields of corn,
'Bow down, and hail the coming morn.'

"It shouted through the belfry tower,
'Awake, O bell! proclaim the hour.'

"It crossed the churchyard with a sigh,
And said, 'Not yet! in quiet lie.' "

LONGFELLOW

"Now, my happy friends," bubbled the brook,
"hoppety-hop and away you go, all but my little chum,
Daisy, who stays with me all summer."



LESSON IX

AN EVENING UNDER THE STARS

"Dear Mother, how pretty
The moon looks tonight !
She was never so cunning before ;
Her two little horns
Are so sharp and so bright,
I hope she'll not grow any more.

"If I were up there
With you and my friends,
I'd rock in it nicely, you'd see ;
I'd sit in the middle
And hold by both ends,
Oh, what a bright cradle 'twould be !

"I would call to the stars
To keep out of the way,
Lest we should rock over their toes;
And then I would rock
Till the dawn of the day,
And see where the pretty moon goes.

"And there would I stay
In the beautiful skies
And through the bright clouds we would roam;
We would see the sun set,
And see the sun rise,
And on the next rainbow come home."

ELISA LEE FOLLEN

"How happy you are this evening, little brook," called out Bunny, as he played in the sweet clover.

"What a pretty song you were just singing!"

"Sweetly sung!" cried Dick and Chip. "We heard you, and we crept out of our nests to listen."

"Br-r-r, br-r-r, better be in bed, br-r-r, br-r-r!" rattled a deep voice among the reeds.

"Ha, ha!" bubbled the brook. "That is one of my frogs. Perhaps I woke him with my singing.

"But come along, little friends! If it were only summer now, I would send my tiny fireflies to light

your way. Do you remember how they used to lead you through the woods?"

"Yes," said Dick, "I often think of one night when we came down to see you. We peeked into every dark corner to see if anything was there to hurt us. Even the shadows ran away when they saw the fireflies. That was the night you sang

"When softly mother earth is dreaming, — sleeping,
I question whence the fireflies come;
The moon says, 'Tears they are from stars that weeping,
Have lost the path that leads them home.' "

EUGENE ASHTON

"Now for a story!" sang out Chip. "If the robin were here, we should have our whole party. Wait! I will call her."

Away he ran, but in a minute he was back. "You come, too, Dick," he begged. "The old owl may see me and gobble me up!"

Soon the bright chipmunk was calling, "Chip, chip, che-chip!" under the apple tree.

"Chirp, chirp!" came the answer, and down flew the robin.

"Why, here are Chip and Dick," piped the little bird. "You are out late."

"The brook is going to tell us a story, and so we ran over to tell you to come and hear it."

"You are always kind to me," was the answer. "I hope to be able to help you in some way."

"You have done so already," said Chip. "You have sung to us from morning till evening. And once, when the gray cat came creeping up behind the stone wall, you chirped so loud that I looked over and saw him just in time to dodge his sharp claws."

"Here we are by the brookside," said Dick. "I never before heard the little stream ripple so sweetly. Let us sit near where the waves frolic with the pebbles, and listen to the story. It is just beginning."

"When you went home today the long shadows were creeping into the valley. Soon the sun sank behind the low hills."

"I suppose the rosy fingers were there to close the gates again," said Chip, with a merry twinkle.

"Yes," rippled the brook, "and the sun seemed to speak like a king."

"O'er me, like a regal tent,
Cloudy-ribbed, the sunset bent,
Purple-curtained, fringed with gold,
Looped in many a wind-swung fold."

WHITTIER

"The air grew calm. The waves on the pond fell asleep. The clouds put on their gray blankets and sailed off to bed.

"One by one the stars brought out their twinkling torches and began the silent march across the sky."

"Who made the stars?" asked the same little mind that was always at work.

"Do you remember the pretty snowflake verses, Chip?

"Who's the Master that you serve,
Bids you lift your tiny sails,
Brings you safely to the earth,
Guides you through the wintry gales?

"He who tells the birds to sing,
He who sends the April flowers,
He who ripens all the fruit,
That great Master, he is ours.'"

Little Redbreast caught one of the pretty lines, and sang it over.

"He who tells the birds to sing.'

"We just grow to like to sing," she added. "We love the brooks and the woods, and we love our nests with the little hungry mouths in them. How can we

help singing? All nature seems to belong to us, and so we sing, sing, sing, we are so happy."

"All of nature that we love does belong to us," said the brooklet. "Who can take away from us the pretty flowers, the songs of the birds, the pure air, the blue sky, the warm sunshine, the silver moon, the twinkling stars? Do they not belong to all of us who love them?"

"But the night is here with her picture book and stories," the brook went on.

"What! is the sky a story book?" broke in little Chip.

"And a picture book as well," said the brook. "Come nearer, and I will show you some of the pictures and tell you one of its stories.

"Every bright squirrel can find the Great Dipper in the sky."

"There it is, low in the northwest," called out Dick. "The two dots in this Dipper, farthest from the handle, are the pointers. A line through them points nearly to the North Star."

"Good for you, Dick," sang out Bunny. "How did you learn that?"

"Dick is my cousin," said Chip, looking proudly at the big gray squirrel.

The brooklet went on: "You are right, Dick. The Great Dipper is part of the Great Bear, and the North Star is at the tip of the Little Bear's tail."

"Two bears in the sky?" asked timid Bunny, ready to run to his burrow.

"It is an old, old story," began the brook. "It was told to girls and boys long ago in a far-off land.

"On a high mountain lived a king named Jupiter. His beautiful queen was Juno. In a forest below lived a princess who spent most of her time hunting.

"Juno did not like the princess, and so she said, 'I will take away her beauty and change her into a bear.'

"Down she fell upon the ground. Her soft white hands and feet turned to great paws, and her pretty fingers grew into sharp claws. When she tried to speak she could only growl.

"All night she slept in the dark woods; yet she did not feel cold, for a heavy coat of hair had grown all over her body.

"One day she met her only son hunting. Oh, how happy she was, as she ran to put her arms round him. 'He will surely know his mother!' she thought.

"But, alas! he saw only a savage bear, and as it ran toward him he raised his spear to kill it.

"But Jupiter felt sorry for the son. He would not let him kill his own mother. So he changed the son into a little bear. Then he put both bears into the sky and chained them near the North Star.

"How angry Juno was to see them shining there! She begged old Ocean not to let them bathe in the cool water.

"So there they prowl, round and round the North Star, but they never dip below the sky line that we see from here."

"What a pretty story!" cried out Chip, jumping about in glee. "Please tell us one more."

"Let me see. What shall it be? Oh, yes, there is a pretty one in the northeast sky.¹ I watch for it every autumn evening.

¹ To the reader the little book says: "Come and sit on my bank some autumn evening and we will find the story in the stars.

"We will start from the Great Dipper and look past the North Star till we reach five bright stars that form a W in the edge of the Milky Way. These five stars are the chair of Cassiopeia (kāsiōpē'yā), the queen in the story. They are about as far from the North Star on one side as the Great Dipper is on the other.

"Farther down in the sky, in the same line from the North Star, and below the W, we shall see a row of bright stars just to the left of a large starry square. The bright stars make up Andromeda (āndrōm'ēdā), the princess. The square is part of Pegasus (pēg'āsūs), the winged horse.

"Let us now set out from the W and look down the Milky Way to the northeast. We shall find three bright stars pointing downward, with a clear star to the right. The group is Perseus (pēr'sūs). The star to the right is his shield."

"Once upon a time a wise king ruled the land by the upper Nile. His young queen boasted that she was as beautiful as the nymphs of the sea.

"Nymphs are much like fairies. Some live on the land, but these in the story lived in the ocean.

"The nymphs were very angry when they knew what the queen had said. So they sent a storm to destroy the land of the king and queen.

"They also sent a huge monster swimming to the shore, to kill the poor people and eat them.

"The king told the nymphs that he was sorry for what the queen had said, and that she was sorry, too. But the nymphs said to him, 'You must chain your only daughter, Andromeda, to a lonely rock on the shore. When our monster has eaten her, he will leave you in peace.'

"The good king was very sad, but his dying people begged him to save them. 'We were not to blame,' they said; 'it was the queen.'

"At length the king agreed. The princess was chained to a great rock, while her father and mother sat weeping on the shore.

" 'How gladly would I take her place,' cried the poor queen. But the nymphs said, 'No!' They were trying to make the queen suffer.



"DOWN FLEW PEGASUS, THE WINGÈD HORSE"

"Then far off a big black head rose out of the sea. The water was churned to foam as the great monster rushed to devour the princess.

"All at once a dark speck was seen in the sky. Nearer and nearer it came. 'It is the flying horse!' cried the people, 'and on his back is Perseus, son of Jupiter.'

"Down flew Pegasus, the wingèd horse, with the noble prince on his back. On his left arm the prince carried a magic shield that would turn to stone any creature looking at it.

"Perseus heard the sad story. Then he looked toward the sea. The monster, splashing and making a horrible noise, was heading straight for the rock where the princess was chained.

"The brave prince darted into the air and struck his sword deep into the great scaly back. Then as the mad beast turned, Perseus held out the magic shield. The monster was changed to a rock in the sea.

"Of course the noble prince was married to the lovely princess, and now they both live in the starry sky. The king, the queen, and the flying horse are there, too. Some day you will learn about other star groups."

As the brooklet ended the story Chip looked up

into the sky and cried out : "The Great Bear is moving ! When Dick first pointed it out, it was in the north-west. Now it is under the North Star. Why ! I believe every spot in the sky is moving. I hope the pretty stars will not leave us forever."

"Do not fear !" bubbled the brook. "You all need to sleep now. But come back in the morning and we will have a story about the sun and the moon."



LESSON X

DAYS, NIGHTS, AND SEASONS

"O moon! in the night I have seen you sailing
And shining so round, and low ;
You were bright! ah bright! but your light is failing ;
You are nothing now but a bow.

"You moon, have you done something wrong in heaven,
That God has hidden your face?
I hope if you have you will soon be forgiven,
And shine again in your place."

JEAN INGELOW

So sang the brooklet as the silver cradle rocked in
the east, and the pretty stars, like tiny fish, sank into
the pale blue sky.

"I wish my little friends were here to see the break of day," it added.

"Here we are," rang out a merry chorus, and down they came, with nimble Chip in the lead.

"Just in time," rippled the brook, "for I am to show you why the days, nights, and seasons visit our valley, and here is a day close at hand.

"You know that the earth is a large ball. It is rounder than the button balls on the bush over there. It is rounder than an apple, — yes, rounder than the ball the boys play with; but it is not a perfect ball.

"This great ball rolls over and over like the soap bubbles the children blow into the air."

"Does the earth float in air like a soap bubble?" asked Daisy.

"Oh, no!" rippled the brook. "The air is part of the earth and turns with it. The great ball is made of land, water, and air. The land and water are inside a cover of air.

"The moon is a great ball, too, but it has no air."

"Then how could a girl blow soap bubbles there?" asked little striped-sides. "There would be no air to float the bubbles. They would just fall on the moon, wouldn't they?"

"But what would the girl blow into her bubbles?"

"Oh, I see! If there were no air, she couldn't blow bubbles," cried Chip. "Why, she couldn't live there without air! We couldn't live there, either."

"If the moon is a ball, why doesn't it always look round?" asked Daisy. "Some nights it is like a bow."

"The moon does not shine by its own light," began the brook. "Nor does the earth. Both get light from the sun.

"Of course the sun can light only one side of the moon at a time. When we are almost between the sun and the moon, we can see the full shining face.

"Part of the time we can see one edge of the bright face, and that looks like a bow."

"Does the sun light the earth in the same way?" chirped Redbreast.

"Yes," bubbled the brook, "and the earth shines on the moon just as the moon shines on us."

"If we were up there in the moon, could we see a round face here at times, and then a bow?" asked Dick. "One night Chip and I were looking at the moon, and we could see a bright bow, and also a faint light filling all the rest of a ring."

"Oh, I have seen that many times," added Bunny. "The ring is dim and pale."

"If we were up on the moon, the earth at times

would look the same, with a bow of bright light and the rest of the circle of pale light," said the brook.

"The bright bow is what we can see of the part the sun lights up. The pale part of the moon is dimly lighted by the bright earth, just as we are lighted at night by the bright moon.

"Many queer stories are told about the moon. The Eskimos of the far north think the moon is the sun's sister. Once the sun was angry, and he burned one side of his sister's face. She tried to get away before he could burn the rest of it, and he is still trying to catch her."

"I know which side he didn't burn!" cried Bunny. "But did you ever see the rabbit in the moon?"

"Is the old owl chasing him?" laughed Dick.

"Bunny is right," rippled the brook. "There are patches of light and shade on the moon, and one of them looks like a rabbit."

"Is there a story about it?" asked ever-ready Chip.

"Oh, yes! a god of olden times wished to find out which animals were kind. So he came down as a poor, hungry beggar. A fox stole some milk and gave it to him, but this did not please him.

"A little monkey ran up a tree and gave him some fruit. This was kind, but it cost the monkey nothing.

"A rabbit said, 'I have some sweet clover, and you may eat all you wish.'

"'But I can't eat clover,' was the answer. 'I like meat; won't you let me eat you?'

"The bunny pitied the poor beggar, and said, 'Yes, you may eat me.'

"The beggar lighted a fire and asked the rabbit to go up on a high rock and jump into the blaze. The bunny jumped, but in the air the god caught him and gave him a place in the moon to reward him for his kindness."

"Poor place for him, where there is no air!" said Bunny. "But what are the spots in the moon?"

"They are hills, high peaks, and low plains," rippled the brook. "When the sun shines on them, they do not look alike. There are many high peaks with large round hollows in the top, like volcanoes. Perhaps the dark plains are the beds of old seas that have dried up."

"But isn't there a story about the 'man in the moon?'" asked the little chipmunk.

"Yes, there are many stories about him," rippled the stream. "Some of the red men think it is not the face of a man but of a child.

"One night the moon heard a child crying, and came

down to see what the matter was. The child was crying for a drink of cool water.

"The moon stood in the door of the tent and waited for the mother to get the water. But the poor mother was too tired and sleepy. So the moon got it for the baby.

"When the little one stopped crying, the moon took it up and flew back to the sky. Now you can see the baby's face in the moon."

"I hope the moon took a bottle of water up there, too," piped Chip, "or the baby would have to cry its head off. I shouldn't like to live up there. There can't be any brooks, or grass, or flowers.

"There are no birds to sing, no bees to hum, no clouds, no raindrops, not even a breeze on the hottest day. Oh, no! the silly bunny, the girl with the burned cheek, and the crying baby are welcome to it."

"But how about the sun?" asked Bunny.

"We see it as a great ball of fire," said the brooklet. "It is very large, — many thousand times as large as the whole earth. It turns round, as the earth does, but not so often.

"The outside of the sun is like a sea of fire. Our earth wouldn't make one of the large waves on it."

"Fine place to live!" laughed Dick. "Let's give

that sea to the frogs. Then they needn't go into the mud when winter is coming."

"If the old sun were not so stingy, it might send us more heat in winter," said Bunny.

"Then we might burn up in summer," chirped Redbreast. "Or the fields might dry up too fast, and you couldn't find any clover, Bunny."

"Why doesn't the sun stay in one place all the time, so that we need have no dark?" asked Chip.

"To-hoot-to-hoo! Want to starve me? To-hoot-to-hoo!"

"Tb-b-b, tb-b-b! Dry up the pond. Tb-b-b, tb-b-b!"

"Fr-r-r-r-r, fr-r-r-r," rustled the wings of a big humming-bird moth that feeds in the dark.

Chip smiled. Then he looked up to the sun and chirped, "The vote is three to one; turn off the light when you think best."

"But, Chip," bubbled the brook, "the sun does not go round us to bring light and dark. We go round and round like a top every day. Part of the time we face the sun, and the rest of the time the other side of the earth faces it."

This was too much for little Chip. Had he not with his own eyes seen the sun go across the sky? Had he not seen it set in the west and come up in the east? Did

he not know that the light came with the sun and went away with it? Could he not believe his eyes?

The brook saw that he was puzzled, and so it rippled: "I will show you, if Dick will help me. He can cling with his toes better than you can.

"We will use the windmill that pumps water to the tank. The top of it turns toward the east.

"Now, Dick, I wish you would climb to the top of the wheel, face the sun in the east, let the wheel carry you round, and then you can tell us what you see the sun do."

Up went the nimble squirrel to the very top. "I see the sun just in front of me," he cried. "Now it is over my back. Now I must turn my head to see it behind me. There it goes down behind the big wheel. I never saw it travel so fast before."

"Wait a minute, Dick," chirped Redbreast. "You will soon see it again."

"There it comes!" shouted Dick. "It is rising in front of me."

So over and over the great wheel swung, with Dick on its long arm. First his face, then his back, then his bushy tail moved under the sun. Then he waited till the — shall we say "till the sun came round again" or "till the wheel turned round again?"

Dick came down very happy. "If the wheel had been a big ball like the earth," he said, "it would have been day on one side and night on the other."

"Yes," rustled the little flower, "we could see you go into the shadow and then come out again."

The brooklet bubbled with joy as the chatter went on. It was all plain now. She told how the great ball we live on turns round each day; how it rolls us into the light and then into its own shadow, making day and night; how the turning seems to make the sun rise and set.

"If Dick had not clung on," chirped the robin, "he would have fallen from the wheel when his head was down. Why don't we fall off, and why doesn't the water fall out of the pond at night?"

"The earth draws everything toward itself," said the brook. "'Down' simply means toward the earth. 'Up' is away from it. 'Up' is not toward the sun or any one place off in the sky. 'Down' is under us; 'up' is over us.

"In the night, as well as in the daytime, the trees stand up, because they point away from the earth. If you want your head down, you must stand on it."

"I can see what makes the sun seem to come and go," cried out Chip, "but I don't see why part of the year is hot and the other part cold."

"That is another story," replied the brooklet.
"The earth turns round every day, to bring day and night. But it also follows a very long path round the sun. It takes a whole year to go round the sun once.

"The path of the earth is its orbit. This is an old word that means the 'rut made by a cartwheel.' Of course the earth is not in a rut, but it goes in the same path, which seems to be a rut, or orbit.

"The earth tips a little, as it goes round the path. Half the year we tip toward the sun, and the rest of the year away from it."

"I see!" piped Chip. "When we tip toward the sun, we have the warm part of the year."

"Yes," bubbled the brook. "And you all know what we call the warm part."

"And the coldest part is winter," whispered Daisy.

"Right here in our valley we can see that the sun is high in summer and low in winter," said Chip.

"Ah!" said Daisy, "now I know what a little boy meant when he went by singing :

"In winter I get up at night
And dress by yellow candlelight.
In summer, just the other way,
I have to go to bed by day."

ROBERT LOUIS STEVENSON

"I don't see any cold winter," chirped the robin. "I fly away from the snow and ice and go south, where it is not so cold. Then I come back in the spring, before summer is here."

"And I sleep all winter," squeaked Chip.

"I have a warm coat for winter," said Bunny. "It grows in the autumn to get me ready for the cold winter. With my short legs I couldn't hop all the way south and back. How could I go across the rivers?"

"When winter is coming, I just creep down into my roots and go to sleep under the snow blanket," cried Daisy. "I come up when the warm days of spring wake me."

"Tb-b-b, tb-b-b, so do I!" came a deep voice from the pond. "I go into the mud, tb-b-b, tb-b-b!"

"Bz-z-z, bz-z-z, I live in my hive!" called out a passing bee. "Bz-z-z, bz-z-z!" And away she flew to sip the nectar in the clover field.

"Now, little friends," bubbled the brooklet, "off you go to find supper. Come back tomorrow and we will chat about the plant life in our valley."

"Good night!"

"Good night!"



LESSON XI

THE STORY OF PLANTS

Such a morning!

Far and wide the frost had pitched its tents of frozen vapor. The air was still, as if it slept in the cradle of the valley.

The soft blue sky lay asleep in the pond.

Bright-tinted leaves, like feathers from the wings of morning, sifted down from the swamp maples. The foliage had ended its summer work and dressed itself in gay colors.

Autumn's earliest frost had given
To the woods below,
Hues of beauty, such as heaven
Lendeth to its bow;

And the soft breeze from the west
Scarcely broke their dreamy rest.

WHITTIER

Such was the morning when our little band came
down to hear the story of life in the valley.

Of the wild bee's morning chase,
Of the wild-flower's time and place,
Flight of fowl and habitude
Of the tenants of the wood ;
How the tortoise bears his shell,
How the woodchuck digs his cell,
And the ground-mole sinks his well ;
How the robin feeds her young,
How the oriole's nest is hung ;
Where the whitest lilies blow,
Where the freshest berries grow,
Where the ground-nut trails its vine,
Where the wood-grape's clusters shine.

WHITTIER

After the good mornings were spoken Chip said to
the brooklet, "May I ask you a question that is
puzzling Dick and me?"

"What is it, Chip?"

"Why do not the same kinds of plants grow over
all the valley?"

"Where did the yellow cowslips grow last May?"
asked the brook.

"They were here in the damp meadow," said Chip. "But I didn't see any up on the hill. That is just what puzzles us."

"And I saw them here," piped Robin. "At first I thought they were buttercups. They grew near the white-violet bed."

"I know another plant that grows in the wet soil," added Dick. "It has dark-red berries."

"Cranberries!" shouted Chip. "Here are some of them now. Ugh! how sour they are."

"That is an odd name," chirped Redbreast. "I wonder what it means."

"So it is," said Chip. "We can guess why 'blue,' 'black,' and such names are given to berries, but what is a 'cran'?"

The brook smiled. Dear little Chip had such a funny way of asking.

"'Cran' means 'crane.' Do you know what a crane is, Chip?" asked the brooklet.

"Yes, it is the bird that walks on stilts and has a long pipe in its mouth, isn't it? It wades here on the edge of the pond."

"Tb-b-b, tb-b-b, drive it away, drive it away!" croaked the old frog. "It will gobble us up!"

"In olden times," said the brook, "people thought

the stem and blossom of the plant looked like the crane, and so they called it the 'crane' or 'cran' berry."

"Huh!" grunted the chipmunk. "Better call the sunflower an owl's eye. It looks more like it than this little sour thing looks like a bird."

"How about the day's eye?" asked Dick.

"Some sense in that," was Chip's answer. "Here is our pretty flower with an eye of gold, and with rays streaming out of it. What could be better for her than the name 'daisy'?"

"Thank you, Chip," said the wild flower, with a pretty nod.

Then the brooklet asked, "What else grows in wet places?"

"The big brown cat-tails stand in the pond," answered Dick. "I like that name, don't you, Chip?"

"I don't like cats," said the little chap, "and I am glad that only the tails show above the water. I hope the heads are in the mud with the sleeping frogs."

"I don't like cats either," chirped the robin. "But I do like the soft pussy willows that grow in wet places. I look for them just as soon as I fly north in the springtime."

"Then there is our jolly friend Jack-in-the-pulpit,

down there with his frog choir," laughed Dick. "He preaches and they sing."

"And do not forget the water cress and the blue flag," chirped Redbreast.

"Or the pond lilies," added the brook. "They float on the still water but send their roots into the mud below."

"Perhaps the one who makes them grow wants to see the sweet faces," was Chip's pretty thought.

"Now, little friends," said the brook, "what plants grow on the steep hillside?"

"Not many grow on the steep slope," began Dick. "The soil there is thin. The rain and rills wash it away. Some coarse grass and a few bushes grow there."

"Last May," said Bunny, "clusters of wild columbine grew among the rocks. When the breeze blew they swayed their pretty scarlet and yellow blossoms."

"Columbine! another hard name," piped Chip.

"But a good name for this flower," rippled the brook. "The name means 'dove flower.' Each spur of the blossom looks like the bill of a dove."

"When I sat looking at the columbine last July," said Bunny, "a tiny bird flew up with a 'whir-r-r-r.' It seemed to stand still in the air while it ran its long bill into the blossom."

. "Did it have a ruby throat?" asked Redbreast.

"Just like a little flame!"

"It was the rubythroat, a pretty humming bird," piped Redbreast. "It has a bill just suited to the flower spurs. They are too deep for the honeybee."

"I saw a funny bird that day, too," added Bunny. "Its upper bill didn't fit the lower one, but hung down past it. It was on a big pine tree."

"Was it a red bird, and did it sing 'kimp, kimp'?" chirped the robin.

"That was it!" cried Bunny. "And it could swing round the limbs like Dick."

"That was the red crossbill," said Redbreast. "Its bill is not out of shape but is crossed to pick out the seeds of the pine cones."

"We forgot to name the pines as trees that like to grow on hills," bubbled the brook.

"But let me tell you what the people of olden times used to think about the crossbill.

"There was once a good man, in a far-off land, who was nailed to a cross. This little red bird was very sorry for him and tried to pull out the nails with its bill. It tried so hard that its bill was twisted. The pretty cross was left on its bill, to show all the world how it had tried to help the good man."

"I don't know how true the story is," said Chip, "but the bird has a good name. I like the word 'honeysuckle' too. It tells that the blossom has honey to suck up.

"But I do not like the name 'cat-tail,'" he added. "Who would name a flower for a cat unless it had thorns like claws?"

Poor Chip could not forget that he was nearly caught by the old gray cat's sharp claws. And so we must not blame him for not liking cats. He would not even go near a pussy willow.

"Bunny, you have not told us where the sweet clover grows," bubbled the brook.

"When it comes to telling where clover grows, just call on me," said Bunny. "I know where to find the white, the yellow, the red, — yes, Chip, and the pussy clover too."

"Bah!" snapped the chipmunk.

"But the pussy clover is called also the 'rabbit's-foot clover,'" laughed Bunny; "and you know which name I like, don't you?"

"The white clover and the yellow like the bushy pasture, the fields, and the sides of the road. The red clover likes the damp meadow.

"There is much to tell about the clovers. Isn't it

strange that we can see so many yellow butterflies over the yellow clover? Over all the clovers hover bees, beetles, wasps, moths, and many other insects."

"And bunnies, large and small," piped Chip.

"Did you know, Chip, that the yellow and white clovers put their leaves to bed?" asked Bunny.

"How?" squeaked little striped-sides.

"You know that the leaf is made of three leaflets. When they are ready to go to sleep, the two side leaflets twist till the upper sides face almost north. The end leaflet then twists and bends till its upper side is on the upper side of one of the others. These two can sleep warm. The other is 'left out in the cold.'"

"Not a very good mother, it seems to me," barked the gray squirrel, "to leave one baby out in the cold."

"Perhaps we do not know the reason why," bubbled the brook. "But I have been waiting for you to name a pretty blue flower close by us."

"The fringed gentian!" chirped Redbreast. "Here it is now in the damp meadow. But I have seen it in the woods too. I know a little song about it.

"Thou waitest late and com'st alone,
When woods are bare and birds have flown,
And frosts and shortening days portend
The aged year is near his end.

"Then doth thy sweet and quiet eye
Look through its fringes to the sky,
Blue — blue — as if that sky let fall
A flower from its cerulean wall."

BRYANT

"Bravo, bravo!" cried Chip, trying to clap his tiny paws. "Isn't there some other little blossom you can sing about?"

"Oh, there is a song about almost every flower. Over in the pasture the dandelion lifts up its golden locks in the springtime.

"Dear common flower, that grow'st beside the way,
Fringing the dusty road with harmless gold."

LOWELL

"And over by the edge of the woods spread the hawthorn trees. The white blossoms were there last May, and then came the red berries. A funny song about the bush or small tree runs like this:

"The fair maid who, the first of May,
Goes to the fields at break of day
And washes in dew from the hawthorn tree
Will ever after handsome be."

Here Dick turned to Bunny and said, "Last winter I saw a dog chase you, over by the hawthorn, but you ran into your hole just in time."

"Yes, Dick, he nearly caught me.

"It was a cold day. The ground was white with snow. I went out to nibble a few buds and a little bark, for I do not lay by a winter store as you do.

"Just as I reached the edge of the woods I was almost stunned by a loud noise. I felt a sharp pain and tried to hop away, but a bullet had broken my leg.

"Then I heard a savage dog bark close behind me. Oh, how scared I was! The hard snow cut my poor bleeding leg as I dragged it along, and it left a red stain.

"How I reached home I do not know. I was still hungry, but what of that? How my poor leg did ache!

"Long days and nights I had to lie quiet till my leg grew stronger. Then I crept out to gnaw a little bark.

"But when I saw the April showers and heard the early bluebirds sing, I knew that spring was at hand. Then how happy I felt!"

When Bunny ended his story, the wild flower was trembling, and Dick turned away his eyes to hide a big tear.

"Poor Bunny!" was all he said,

Even the brooklet seemed to murmur over the pebbles. Then it bubbled more cheerfully as it took up the story of plant life in the valley.

"You seem to know where all our plants grow, but do you know how their seeds are carried from place to place?" it asked.

"I have seen the down of the thistle floating away with its seeds," was the wild flower's answer.

"The pine cones roll down the hill," cried Chip. "And I have seen some of them floating away in the brook. The seeds are shut in by the scales of the cones."

"Dick helps the nut trees to grow in new places," said Bunny.

"Field mice carry grain to their nests under boards or in the ground," piped Redbreast.

"Where? where? to-hoot-to-hoo!" called the old owl.

"No doubt you'd like to know where," laughed Chip. "And you would like to know where I live, too. But I won't tell you."

"Some plants do not have to scatter seed in order to grow in new places," said Bunny. "Often I find witch grass creeping along in the ground where it has not grown before."

"Ants carry many small seeds into the ground, do they not?" asked Daisy. "I have seen two or three ants dragging one large seed."

"In these and other ways the seeds and the plants are carried about," babbled the brook. "If they reach the proper soil, they spring up and grow."

"But there are places they cannot pass. When the witch grass reaches a pond or a ledge, it must turn aside or die. If the tufts of the dandelion light on the hot sand, the seeds will not waken."

"The seeds of marsh plants may be carried to the hills, but there they die. A rolling pine cone may start trees on a hillside, but pine seed will rot in a bog or wither away on a sandy field."

"Plants must lose many of their seeds," added little Chip. "They are pretty good food for some of us."

"That is so," chirped Redbreast. "I like all kinds of berries, — blue, black, huckle, and holly."

"I have seen little birds feeding on many kinds of seeds," said Bunny.

"Worms grow in apples and pears, and feed there," added Dick, "but perhaps they do not eat the seeds."

"Do you know what woodpeckers do with acorns, Dick?" asked the robin.

"Yes, they peck holes in the bark of trees and then

put acorns in the holes. When the nuts are wormy, the birds come and eat the worms. The holes run round and round some trees, like rows of buttons."

The little brook was now ready to take up the story.

"I am glad you have seen that plants cannot grow in all places where their seeds are sown. They grow only where the soil, heat, and moisture will supply the food they need.

"The lily needs much water; the pine but little. Thistles take root in rocky places, but meadow grass needs rich soil. Clover lifts its pretty head up to the sun, while many mosses creep away into the dark, damp woods."

Here little Chip broke in. "Now I see why the same kinds of plants do not grow over all the valley. Here we find meadow grass, there the cranberry; here the water cress, there the thistle; here the white violet, there the blue; here the willow, there the pine."

"Hurrah for Chip," cried Dick. "That was quite a speech for such a little chap."

"He did well," bubbled the brook. "But can you tell how one part of the valley helps the plants to grow in other parts?"

"I have never thought of that," said little Daisy. "How does the hill help me?"

"Doesn't it send down the brook, Posy?" asked Bunny. "And doesn't its water reach your roots?"

"And the hill sends down rich soil in the brook, too," added Redbreast.

"How can the pond help the hill?" piped Chip.

"Don't you see, Chip?" asked Bunny. "Ponds, lakes, streams, and the sea give the vapor for the rain that falls in the hills."

"But what good is the rain to the hills?" asked Chip. "It only cuts them down."

"But it gives water to the trees on the hills, doesn't it?" went on Bunny.

"And it helps the hills themselves too," put in Dick. "The rain makes grass grow on the hills; the grass keeps the rain from cutting the hills down so fast. Isn't that helping the hills?"

Chip gave it up. But soon he broke out with another puzzle, "How does the field of sand help the damp meadow?"

Bunny's ears drooped. Dick shook his head. Redbreast didn't even chirp. They all turned to the brook for an answer.

Then they saw Chip smiling. In a few minutes he chirped: "Caught you all that time! Didn't we learn how the hot sand sets the wind blowing? And doesn't

the wind carry the vapor? Now, what gives the rain to all parts of the valley?"

Dick rubbed his cheek along the two pretty stripes on the chipmunk's side. He was very fond of his little cousin.

The brooklet was happy. She was fond of them all. She was happy down here in the meadow, and she had been happy away up in the woods.

Every moment she had been at work, bringing down raindrops, brushing sand and pebbles along, carrying soil, and doing all that a little brook knows how to do.

So she sang to her friends a song she used to sing far up among the tall trees.

"Up in a wild, where no one comes to look,
There lives and sings a little lonely brook;
Liveth and singeth in the dreary pines,
Yet creepeth on to where the daylight shines."

ADELINE WHITNEY

Chip ran down and touched his lips to the water. Then he ran for home as fast as his short legs would carry him. Dick and Bunny hurried after him. The robin flew up to the apple tree. Soon they were all asleep except Bunny. He was out with Mrs. Bunny and the little bunnies, nibbling grass but keeping an eye out for the old owl.



LESSON XII

THE STORY OF ANIMALS

"If you were a bird, Chip, would you rather have feet like a duck's or like a woodpecker's?" asked the brooklet, with a merry twinkle.

Chip had been caught by a question before, and so he said: "Like a woodpecker's, with two sharp toes in front and two curved back. Then I could cling to the bark of the oak."

"And what kind of bill would you choose?"

"A duck's bill. I could carry nuts and grain in it."

"But how would you crack the nuts?" bubbled the brook.

Chip was in a trap. His bead eyes sparkled with fun. Then he chirped: "If I had such a bill, I should not try to crack nuts. I'd swim in the pond, dip my head

among the bugs and weeds, and get my food as a duck does, by straining it out of the water."

While speaking he perched his head on one side in a saucy way, as if to say, "Now I am out of your trap!"

"You would not paddle very fast," laughed the brook. "Just look at the duck's webs, and then at the woodpecker's slender toes. You would come from the pond hungry, I fear."

"But," replied the chipmunk, "I could use my sharp toes to climb the apple tree, where I could dig bugs and worms out of the bark, as woodpeckers do."

"You would have hard work pecking the bark with a duck's bill, my little friend," was the answer.

"That is true," said the frank little chap. "If I had a duck's bill, I should need its short, strong legs, its webfeet, and its broad, oily body."

"It seems so to me," chirped the robin. "And if you had a woodpecker's toes, you would need every other part of his body. You would need his stiff tail feathers to brace against the trees, his strong bill to peck the bark, his barbed tongue, and, above all, his appetite for bugs."

"I am glad to be only a little chipmunk, with just what belongs to me. It would be odd if cats had hoofs,

mice had long horns, bunnies had shells, horses had bills, and dogs had wings."

"It seems to me," said Bunny, "that each of us is just fitted to his home. What should *I* do with long horns?"

"Yes," rippled the brooklet, "each of us grows to fit the place he lives in.

"The duck has a bill to scoop its food from the water, and it has a strainer on its bill, to catch bugs and bits of plants when it throws the water from its mouth.

"The horse has wide hoofs that will not sink deep into the grassland or cling to grass roots.

"The cow has no upper front teeth, so that she may just break the grass off and not tear up the roots."

"Why not tear up the roots of the grass?" asked Chip.

"Then the grass would die, and where would the cow get food?" bubbled the brook.

"The eagle pounces down and often drives its claws through a poor bunny. Then its strong beak can tear the flesh."

"I wish the eagle had no beak and claws," said Bunny, "or the old owl either. I have to keep a sharp watch for them all the time."

"So each animal is just fitted to its home, is it?" asked Dick. "Is that why we see so many queer bills, legs, feet, tongues, noses, and teeth?"

"Let us see if all of you cannot answer Dick's question," bubbled the brook. "What do you think, Daisy?"

"It seems to me that Dick is right," said the wild flower, softly. "See the big blue heron wading in the brook. It feeds on frogs and fish. It has long legs for wading, and a long neck to match, for it must get its head down to the water.

"It has also a sharp bill, like a spear, to catch the fish. It can toss a fish into the air so that it will fall into its throat head first. Then the fins do not scratch its throat."

"Good for Daisy," sang Redbreast. "The snake has a long body that will twist out on branches or hang down to take my eggs. Once a snake took away all my baby robins."

"Poor Redbreast," said Bunny. "But a cat with sharp claws caught two of our baby rabbits the first day they ran out of the ground. She tore them with her sharp teeth and ate them."

"A red honeysuckle grows on our wall," piped Chip. "In the summer a humming bird comes to run

its long bill down the blossom and draw out insects and nectar. The bill just fits the tube of the blossom.

"There is a white honeysuckle too. Moths come to that. They can find it in the dusk because it is white and because it throws out a sweet odor."

"You all use your eyes very well," rippled the brook. "Have you seen any strange coverings on the animals in our valley?"

"Old 'tb-b-b, tb-b-b' has a slippery skin for swimming," piped Chip. "And he has webfeet for kicking through the water."

"Fish have smooth scales, to slip through the water," chirped Redbreast. "And they have fins that help to guide them."

"Bunny has fur to keep him warm and long ears to help him to hear well," said Dick.

"Isn't the turtle odd?" asked Bunny. "No fish can bite through his thick shell. He can snap quickly with his beak. I have heard that some turtles feed on fish and frogs; others on plants."

"If a turtle asks you to swap your fur for his shell, will you do so, Dick?" asked the brook.

"Not I!" was the quick answer. "How could I crawl in the old wall and squeeze through narrow holes? And how could I ever keep warm in winter?"

"Just bury yourself in mud," laughed Chip.

"Perhaps you would like to have scales in place of feathers, Redbreast," added the brook.

"Oh, no! I could not fly with scales as I can with large, light feathers. Besides, how could I keep my eggs warm? Then the hard scales would crush the pretty blue shells. Oh, no! I will keep my feathers."

Here Chip broke in: "I don't see why some birds have only dingy colors. I feel sorry for the wrens and sparrows, with dusty brown and gray coats, while the humming birds look like flowers with wings."

"Once I was in a dry field, and a big hawk flew over and did not see me. I was very glad my fur was brown," said Bunny.

"And I was glad my fur was gray when an eagle flew past and did not see me on the gray rocks of the old wall," added Dick. "I wonder if color is to help us hide?"

"All round us there is a struggle for food and for life," bubbled the brook. "The earthworm crawls from its lonely cave and helps to make a meal for some sharp-eyed robin.

"The hawks carry off chickens and other birds. The owls watch for field mice. The turtles catch frogs, and frogs catch flies.

"A long time ago, so the story runs, a lamb came to drink from a brook. A wolf lay hidden behind a rock higher up the stream.

"Just as the lamb's pretty pink lips touched the water the old gray wolf cried out, 'How dare you muddle the brook where I am drinking!'

"'I only touched the tips of my lips,' said the lamb meekly. 'And how can I muddle the water where you are? You are higher up the stream than I am.'

"'But you called my father names last year,' snarled the wolf.

"'That cannot be, for I am not a year old,' replied the lamb.

"'You need not make excuses,' growled the wolf, 'for I shall eat you all the same.'

"Then he sprang upon the lamb and killed it."

"How cruel!" cried Dick.

"Was it cruel?" asked the brooklet. "The wolf was hungry and killed the lamb for food, just as our pretty robin kills worms for food.

"Once some boys came here to stone my little singing frogs *for fun*. They broke the legs of several frogs and left the poor creatures to suffer for days and days before they died. Yes, and they shot at my pretty squirrels and called it *sport*.

"Which is the more cruel, a wolf that kills a lamb for food or a boy who shoots a squirrel for fun?"

"We know what we think about it, don't we, Dick?" said little Chip.

"But why don't animals learn to fight and take care of themselves?" asked Chip.

"They do try," rippled the brook. "But what can a little chipmunk do when a big owl seizes him in her claws? What can a little robin do in the claws of a cat? What can a frog do when the strong beak of a turtle closes on him?"

"But every creature has some way to defend itself or try to escape. The fly has many eyes and swift wings. The frog can jump into the water and swim fast. The bee has a sting. The horse can kick hard. The cow can hook with her strong horns. The dog can bite. The cat can scratch. The chipmunk can run into its hole. Redbreast can fly away."

"I can kick hard and scratch," said Bunny, "but what good is that when an eagle flies down?"

"But you told me your color once saved you," bubbled the brook. "Color often saves the dusty wrens and sparrows you felt sorry for, Chip. They can hide in dusty bushes and grass.

"Many creatures grow to have the colors of the

leaves, bark, rocks, or sand they live in or on. Their enemies may then pass them by unseen."

"We have some enemies that we cannot see, and that cannot see us," piped Chip. "We may freeze to death, or poisoned grain may be put out for us, or a swift bullet may hit us."

"True," murmured the brooklet. "It is hard to meet such enemies."

"The whole body grows to suit the life we lead. The kind of covering prepares us to bear heat or cold, drouth or rain, and to live on the land, in the air, or in the water."

"The creatures in our valley like to live in some parts better than others," said Bunny. "The pond could not be my home, nor the sandy field; and I could not live in a tree."

"That is because we must live where we are suited to live, isn't it?" asked the robin. "We must live where we can get food, for one thing."

"That means that animals cannot travel where they wish, over all the earth," added Dick. "It looks to me as though the bee must live near the flowers. The rabbit must find grass or leaves. A bird may fly out to sea but must come to the shore to lay its eggs."

"That is a good thought, Dick," rippled the brook.



THE "SHIP OF THE DESERT"

"Wild animals cannot live beyond the places that give them food. Floating as vapor over the earth, I have seen that grazing animals cling to the grasslands. Flesh eaters can go wherever there are animals to feed on. The fish must stay in the water."

"Except a tree fish I once heard about," laughed Chip.

The book rippled and went on.

"Both plants and animals live only where there is food for them. You will see them in meadows, brooks, and trees, on hilltops, in the ground, and wherever their food is to be found.

"Now I see by the shadows that I have only time to tell you about a queer animal that lives in the desert by the river Nile. Then you must scamper to your nesting places.

"This story of the camel will show how an animal may grow to fit even a desert.

"The camel is larger than the horse in our pasture. Its neck and legs are long and its head quite small for its size.

"For four or five days the camel can travel over the hot sand without being fed or led to a drinking place. The fine sand that blows about would blind Dick or Bunny, but the camel does not fear it.

"Chip's little paws would blister and burn on the hot sand, but the camel travels during the hottest days, and even kneels on the hot desert to allow its master to get on or off its back.

"Shall I tell you how it lives in this desert?

"Its great rounded back is made of fatty flesh, and when it has not been fed for a long time this hump supplies the body with food.

"When the useful creature is thirsty, it gets water from water cells in its stomach walls.

"Long lashes protect its eyes from the hot sand that blows about. Thick pads keep the hot sand from burning its knees and feet.

"Thus we see how Nature cares for her children and fits them to their homes.

"For miles and miles the desert stretches away like an ocean. Since the camel bears heavy loads of oil, gums, and salt across this sea of sand, it is called the 'Ship of the Desert.' Doesn't the name suit it well?

"Now, little friends, away to your nests to rest for another day."



LESSON XIII

THE VALLEY AS A HOME

Chip was out early next morning. Mrs. Chip had asked him to bring some more grass for the nest. The cold nights had come, and the young chipmunks must be kept warm.

Dick was out, too. He must gather all the nuts he could before the boys came with their baskets. Mrs. Dick went to help him.

"What a pretty spider web!" cried Dick, looking at a fine, silky net woven from bush to bush.

"What is it good for?" asked Mrs. Dick.

"Oh, it is a trap for flies," answered Dick. "The flies tangle their feet in the web. Then the spider kills and eats them."

"I wonder why it chose this place for its trap?"

Just then a fly was caught in the web. The spider ran out, and soon the fly was quiet.

"That is why," said Dick. "The spider knows that flies go in and out between these bushes. So he sets his trap here."

"Oh!" screamed Mrs. Dick. "Did you see that mole? I almost stepped on it."

"I caught a glimpse of it," said Dick. "Isn't its fur soft and brown? It doesn't often come out in the sunlight."

"It ran into that hole in the ground. Why doesn't it stay up here where the sun is shining?"

"Little wife," said Dick, "the moles feed on earth-worms, and they have to live where they can find the worms, just as you and I live where we can find our food."

"Why, here is Chip," cried Mrs. Dick. "And here is Mrs. Chip too. Good morning, neighbors!"

"Good morning!" called out the two Chips. "How are the babies?"

"Just too cute for anything!" as I heard the good woman over in the farmhouse say about hers," said Mrs. Dick. "And how are the little Chips?"

"Chips of the old block!" piped the little wife as she pointed to her hubby.

And so the chatter went on till they came to Bunny's home. Mrs. Bunny was scolding because the little bunnies had not washed their ears clean.

"Just to think that you would not wash your ears, — you, with such pretty fur. If you don't look out, the other bunnies will think you are just poor field mice!"

Then she looked up and saw her neighbors coming. She dusted off her fur and hopped out to meet them.

"Come in! come right in!" she cried. "Bun, here are the Chip and Dick families."

Bun came out. Who do you think it was? Yes, it was Bunny himself.

The greetings over, the squirrels went on their way, but agreed to come right back for Bunny, as it was time for the brooklet to begin a story.

Soon the three friends were running and hopping on the way to the brook. Redbreast was there, chatting with Daisy.

"What shall the story be today?" asked the brooklet. "I have been thinking of the valley as the home of all the creatures in it. We might talk about that."

"Good!" said Dick. "Mrs. Dick and I were chatting about that this morning."

"First let us see who and what live here," began the brooklet. "You can help me with this."

"Oh, there are so many I don't know where to begin," cried Chip. "There is the family over at the farmhouse, with all the chickens, ducks, pigs, goats, cows, horses, and dogs."

"You forgot the cats!" said Bunny, slyly.

"Never mind the cats, Brooklet. Let's not talk about them," squeaked the little chap.

"Then there are our own families, and all the other bunnies and squirrels," added Dick.

"And Chip's 'tb-b-b, tb-b-b' friends down in the bog," smiled Daisy.

"And his very good friend 'to-hoot-to-hoo' in the old oak," added Redbreast.

"Don't forget your own friend the snake," laughed Chip to the robin.

"Or my tiny friends the earthworms and ants, down in the dark soil," added the brooklet. "Or the moles that feed on worms."

"How many there are," said Dick. "And we have not thought of the field mice, the old woodchuck, my cousin, over by the stone wall, the bats in the barn, or Bunny's friends the hawks."

"Then there are the bees, the bumblebees, and the humming birds; also the moths and the wasps, — yes, and the butterflies," added Chip.

"We have hardly begun to name our neighbors here in the valley," rippled the brook. "There are scores of birds and countless insects. But we will not try to name them. We have enough for our story.

"Now think, and tell me why the same kinds are not found in all parts of the valley."

"Why, you couldn't expect to find owls in the pond," chirped Redbreast, with a sly glance at Chip.

"I'd like to find every one of them there, and the cats too," squeaked Chip.

"The bullfrogs couldn't live in the dry, sandy field," said Bunny, "and the big blue herons wouldn't find the fishing very good there."

"The field mice would find poor picking up on the bare side of the hill," said Daisy. "They like the grainfields best."

"Now," rippled the brooklet, "can you tell where all living, moving things make their homes?"

"Where they can find food," cried Chip.

"And drink too," piped the robin.

"And some place to live in, — some shelter," added Bunny. "And a place to be safe in."

"That is so, Bunny," said little Chip. "We might find food in a field or a tree, but we shouldn't wish to

live in a tree with owls or in a field where owls had burrows. The old wall is a good place for me."

"May I tell you about a butterfly, and how it suits its life to its home?" asked the brook.

"It is a pretty butterfly with orange and brown markings on the wings, and with about four clear eyespots on each hind wing. So bright are its colors, it has long been called the painted lady, but we must not forget that this lady was 'born that way,' as someone has said.

"Another name for the beautiful creature is 'thistle butterfly,' and this brings us to the best part of the story.

"The little insect weaves a cover for itself on the leaves of the thistle, hollyhock, sunflower, or other flower. Under this cover it feeds.

"After feeding for a time it draws the edges of the leaves over to form a tent, and there lays its eggs.

"The fact that it is known as the thistle butterfly shows that it is fond of the thistle. This plant has fluffy cotton and sharp needles that tangle the feet of ants and run spears into the body if they try to reach the eggs.

"When the eggs hatch and caterpillars come out, they feed in safety on the leaves of the thistle. Then

they spin and weave their silky cocoons and sleep in safety, too, in their little homemade cradles.

"At last, when the thistles are in bloom, the new butterflies come from the cocoons and are ready to sip the sweet in the thistle nectar cells.

"Often great swarms of these painted ladies fly far off to new lands, but we do not know why."

"I know about a pretty butterfly, too," said Chip. "It used to live near my home.

"I saw it last summer on a wild-cherry tree. It spun a swing on top of a leaf. The swing was drawn so tight the butterfly could use it for a bed.

"Oh, it was pretty. Its big yellow wings have dark borders with spots of blue in them.

"On each hind wing there is a spur that looks like a bird's tail."

"Yes, Chip, that butterfly lives in our valley," said the brook. "It has stripes like a tiger, and the spurs look like the tail of a swallow. We call it the tiger swallowtail."

"Good name," said Chip. Then the little chipmunk went down close to the brook and whispered, "What wonderful things the raindrops see as they fly on their vapor wings over the world!"

"Perhaps so," rippled the brooklet. "Let me tell

you about a wonderful animal we have seen. It walks upright on two legs, and it *thinks*, and *plans*, and *talks* in ways we cannot. Its name is 'man.'"

"Oh, you mean the farmer over in the farmhouse!" cried Chip.

"He is one," bubbled the brook. "Let us see what use he makes of the valley here, — how he thinks and plans about it."

"Does the brook valley belong to him?" asked the robin.

"Bz-z-z, bz-z-z, the flowers belong to me!" came a sound from a blossom.

"Tb-b-b, tb-b-b, the pond is ours!" croaked an old bullfrog.

"Squawk, squawk, and you are ours!" screamed a great blue heron, as it rose in the air with a beautiful sweep to its long wings.

"To-hoot-to-hoo, Chip and the field mice are mine; to-hoot-to-hoo!"

"You claim the worms, Robin, and you the clover, Bunny, and you the acorns, Dick. The rubythroats claim the red flowers, the bees the blue ones. The lilies own the pond, or share it with the frogs. The goats get the rough land, the cows the meadow. What is left for the two-legged animals over in the farm-

house?" And little Chip looked as if nothing was left for him and he must move off the earth.

The brook smiled. "Chip," it began, speaking in low ripples, "Chip, this good earth and all on it belong to those who know how to use it and make it better.

"The man sows clover seed in the meadow. The bees come to sip nectar from the clover, and so do many other insects. They scatter a fine powder that grows in the blossoms, and this powder, or 'pollen,' helps other seeds to grow.

"Does the clover belong to the man or to the bees?"

"What I get belongs to me," buzzed a bumblebee.

Then the brook added: "The man sets aside the hill for oak and pine trees. Squirrels scatter acorns and help more oaks to grow. The pretty red crossbills open the scales of the pine cones and let seeds fall on the slopes.

"Does the oak belong to the man? Does the pine tree?

"The man sows grass in a field. He cares for it, cuts and dries it, and puts it in the barn for the horses and cows.

"Is the man a slave to do all this work? Does he own the field?"

"I see, I see!" cried Chip. "We use the earth in our way, and the man uses it in his way. It belongs to us all to use."

"That is it, my bright friend," bubbled the brook. "But man knows how to use it in more ways than we do."

"He thinks how to make the best use of our valley. You carry off some of the corn the man sows, and you fill your cheeks with acorns that grow wild."

"The man looks at the land. 'This will raise clover,' he says, and he plants the seed. 'Here is a field for hay,' and he sows more seed. 'The goats like to nibble leaves and twigs,' he says, and he lets the goats run on the rough land."

"'I can get the brook to grind my grain,' says the man. So he builds a dam, lets the swift water turn wheels, and I work for him. I even saw up logs for firewood or for lumber. He also makes the wind work. See the windmill turning now."

"'A stone house is warm,' he says. So he breaks big rocks out of the hillside, smooths them, and builds a fine house."

"He looks at the bumps in the fields and thinks they are hard to drive over. So he smooths long wide places and makes roads."

"‘This is a good place to make the road over the brook,’ he thinks. So here he builds a bridge.

"‘The children need warm clothes for the winter,’ says the farmer’s wife. Then sheep are bought and put in a field of grass. The children are kept warm by the wool. They also have rich milk from the cows in the same field.

"‘The old gray fox has carried off some of my chickens, and has grown fat on them,’ the man thinks. ‘I need some warm gloves.’ A few days later the fox’s skin is hanging on the barn door. Still later the man has new gloves.”

"Ugh!" groaned Bunny. "I don’t like that. Some day he may need some more soft gloves, and I may hang on the barn door.”

"That will pay for the clover you have eaten," joked Chip. "I have heard that gray-squirrel skins also make good gloves," he added, with a sly glance at Dick.

"Chipmunk skins look pretty on children," growled the old gray squirrel. "Besides, there are many children in the farmer’s family. How many live in your nest, Chip?" Then Dick rubbed his cheek against the pretty striped sides as the brook went on with the story.

" 'Wheat and corn are good for chickens and ducks and turkeys. We like the hens' eggs, and we like the roast duck and turkey. We need a larger grainfield,' the farmer says to his good wife. Then he chooses the soil best suited to wheat and corn, and raises his grain.

"A school is built for the children of many farmers, but it is a long way from our valley. 'Why not have some ponies?' asks the man. 'This field will make a good pasture for them.'

"Now comes a strange part of the story," said the brook. "The man needs many things that do not grow here. But he has more of some things than he can use. So he swaps, or 'trades.'

"Cars and ships take the things to many parts of the earth. Goods are carried also by trucks, wagons, and even on the backs of camels."

"Are all parts of the world like the basin of our brook?" asked little Chip.

"In many ways this brook basin is like a tiny world. There are meadows that reach for many miles, but they are just like ours.

"There are large, fertile plains called prairies. There are miles and miles of grassland used for sheep or cattle.

"Our woods are small, but there are great forests

just like them. The water here has cut deep and narrow valleys, but they are like the very large and deep valleys called canyons and gorges.

"We feel the wind sweep past. By and by you will learn how the winds move in wide belts round the earth, and drive great ships along.

"Just as we find the frogs in one place, the squirrels in another, the goats in the waste land, 'the sheep in the meadow, the cow in the corn,' so we shall find that the wild animals have chosen homes in various parts of the world.

"We shall also find that the two-legged animal that thinks and plans and talks has learned to use wisely the meadows, the grassy plains, the forests, the things in the ground, the swift streams, and the strong wind.

"He can do many things that we cannot do. He can talk far off over long wires, and he can talk far off through the air without wires. He can send music miles and miles into other homes.

"He can put his thoughts on paper for other men to read. He can even leave his thoughts for people to read in years to come."

"Don't we do any of these things?" asked Chip, with trembling voice.

"Yes, bright eyes, each of us does some of these things, but man does more. We can do many things far better than he can, but he can do many more things better than we can."

"Won't you tell us just a few things we can do better than man can?" pleaded the little chipmunk. "Then we can feel that our own lives are worth living."

The brooklet smiled and said, "The bee can make honey, but man cannot."

"Hurrah for the bee!" cried Chip.

"The clover can make nectar, but man cannot."

"Bravo, little clover!" sang out Bunny.

"Redbreast can fly, but man cannot. He can only go in airplanes."

"You are ahead of him there, aren't you, Robin?" asked Daisy.

"Fish can take air out of water and live in a pond, but man cannot. He can go down in boats under the water, only if he carries air with him.

"Silkworms can spin silk. Man can only unwind the cocoons, and then spin thread and weave cloth with the silk."

"One kind of plant can make cotton grow. Can man do that?" asked Chip.

"No, he cannot make anything that lives and grows ; but he uses such things in many ways."

The brooklet saw that the chipmunk was still sad. "What can be done to cheer him up?" she thought. "I know; I will tell his friends how he makes his home."

So she smiled to Chip, and said, "Cover your ears while we chat about you."

"It is not worth while to tell about a little ground squirrel," said Chip. "Talk about the man that can think and plan and talk."

"Wait, my tiny friend," rippled the brook, "wait and let us judge. Now cover your ears or they may burn."

Up went the pretty paws, but a little hole must have been left open, for Chip's eyes grew bright as the brooklet prattled about him.

"A ground squirrel is a very knowing little creature. He is one of the brightest in the wide world.

"He loves his family and will often risk his own life to save the wife and babies. He will sit and chirp loudly to them when a fox is creeping up to him and to them.

"But he is wise too, and keeps within easy reach of his hole when hawks fly about.

“How he likes the warm sunshine! He often sits for a long time taking a sun bath.

“For his home he chooses a place where he can look around for signs of danger. He does not like tall grass, but he does like an open field where cows keep the grass short, and he likes the woods if the trees are far enough apart to let the sun in.

“In some such place the striped squirrel digs a hole. Chip’s home is like that of the others. It is a hole straight down for three or four feet. Then it turns and runs many feet on a level.

“At the end of this hole, there is a slope up to a room large enough to hold quite a family. It is made a little above the runway, so that any water trickling down will run out of the nest. The room is also warmer than it would be if it were lower than the runway.

“Chip and his pretty mate have a soft grass carpet on the floor of the living-room.

“The knowing little chipmunks must carry out a great deal of dirt to leave such a large room, with the long entry. They carry it out in the pouches of their cheeks, and they use the same pouches to bring corn, wheat, and acorns to the nest.

“If you look round the small hole that leads to Chip’s nest, you will find none of this dirt. The wise

little chap takes it away and hides it, so that it may not show the fox or the hawk where the hole is. Yes, he is a knowing laddie.

"Chip and his tiny wife started their nest-hole under the old stone wall. They hid some of the dirt among the rocks. The rest of it they took away and put it in bushes.

"If a snake crawls into the chipmunk's hole, it does not catch the cute animals in a trap, for there is a back door to the nest. Bunny ought to have a back door to his burrow. Then the weasels could not trap his family.

"When chipmunks are not busy they like to sit on rocks or stumps and keep up a chatter. The noise is like many small hammers striking on an anvil. But let a hawk come in sight, or a fox, and the chirp, chirp, is loud and shrill. It warns the chipmunk village of danger. When one gives the sharp chirp, all the rest take it up as soon as they catch sight of the hawk or the fox.

"We know that chipmunks sleep all winter. They go into their nests and eat and eat to grow fat. It may take two or three weeks to fall asleep. Then they sleep till April. But even then, if very cold days come, or if snow falls, they go back to sleep again.

"Of course the nest is dark, and we wonder how they know the bright spring days have come. Perhaps they feel the warmth and wake up.

"We might think that Chip and his family would wear down the grass and make paths to their home. But the foxes would be sure to see these signs, and so our wise little friends never make a path. No, they just jump over the grass and seem to try not to go twice in the same place. How cunning and wise!

"Now you may uncover your ears, Chip," rippled the brooklet, as it ended the story.

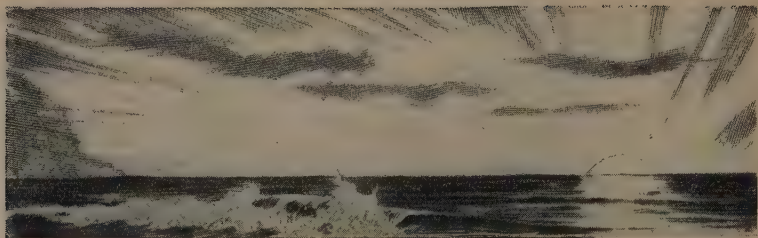
But the chipmunk's eyes were already glowing like coals. He was so fond of stories that he could not help listening to one even about himself.

"Does a man know as much as Chip?" asked the old gray squirrel.

"Little Chip knows more about the chipmunk's life than a man does," bubbled the brook. "And let me tell you this: Many a thing a man knows he learned from plants and animals, and there is much more for him to learn about them.

"Some of his best lessons are *how to use the earth for his home*. These lessons he calls *geography*.

"Now trot along to your nests. See that the babies have all they need, but come back in the morning."



LESSON XIV

HOME TO OLD OCEAN

The sun is up, but Chip and Dick sit quietly on the old stone wall. The eyes that used to dance and sparkle are moist.

Bunny too sits by his burrow. His ears droop and his little eyes are half closed. Mrs. Bunny has just washed five baby bunnies, and they are playing in the sun, but the father hardly looks at them.

"This will never do, Chip," said the old gray squirrel. "We must not sit here all day. Let us call for Bunny and go down to the brook. The raindrops are to tell us the last story today."

"Yes, Dick, when the evening creeps into our valley other raindrops will fill the brook bed. Ours are going home today, back to the sea."

"Here comes Bunny," cried Dick. "What is that you say, Bunny? The brook is singing? Hark!"

On the clear air of the autumn morning comes floating this cheerful song from the brooklet :

"The sea ! the sea ! the open sea !
The blue, the fresh, the ever free !
Without a mark, without a bound,
It runneth the earth's wide regions round ;
It plays with the clouds, it mocks the skies,
Or like a cradled creature lies."

BARRY CORNWALL

"You are thinking of home, little raindrops," cried Chip. "But you will come back, won't you?"

"We will try. Watch for us. We may come soon, too, —

" 'While the loom of winter weaves
The shroud of flowers and fountains.'

"We may sift down as snowflakes and spread a warm blanket over your nests.

"You may see us hanging like spears from the old oak.

"We may sprinkle gems over the bushes or paint the meadow with sparkling silver.

"We may rattle down as hail on the trees.

"Or we may fly away on vapor wings to the sunny south, where Robin will sing all winter.

"Keep your eyes open for us, and your ears too, for we shall come singing to you.

"And if you do not see us this winter, look for us in the April showers. Some bright morning you may find us bubbling up from the hillside, —

"when spring comes round again,
By greening slope and singing flood."

WHITTIER

"When the pink earthworms crawl from their dark caves, ask them if they have met the raindrops at work in the soil.

"Speak kindly to each little rill and cheer it on its way. Our brothers are in it, even if we are not.

"When the new buds unfold and the blades of grass peek from the soil, you will know we are busy. Then run down here and see if Daisy is awake.

"Look to the south day after day. When you see Redbreast coming, we shall not be far behind.

"And be kind to my little frogs, Chip. If you hear them trilling, they may be trying to tell you we have come."

"Please don't ask me to think kindly of the old owl, will you?" asked Bunny. "How can I?"

"The owl is your friend, pretty rabbit. He catches

many field mice. If all the mice that are born in the clover field grew up, the clover would die."

"But he tries to catch my little bunnies."

"Yes, but you must teach your babies to feed close by some hole in the ground or near a big rock. When we learn to live right, we shall find a friend in everything that lives and grows."

Chip could not quite see this, but he would think it over. He did not dare to speak, for fear a big round tear would run down his cheek.

"Little brook," whispered the wild flower, "won't you please tell us about your home in the sea? And you will surely come back, won't you? I shall try to wake early next spring to watch for you."

"You have been a sweet friend to us, Daisy," rippled the brook. "We like to see you nod and smile on the bank, and we have been glad to see how freely you give your gold dust and nectar to the happy bees. We raindrops know how you and the bees help each other.

"Now one more story, a true one about a storm at sea. Then we must bid you all a long good-by.

THE STORM AT SEA

"It is evening on the ocean. The sun has just gone down behind a gray veil.

"The twilight is sad and cloudy,
The wind blows wild and free,
And like the wings of sea-birds
Flash the white caps of the sea."

LONGFELLOW

"Now dark clouds roll up, and crawl over the sky.
The trembling stars put out their lights.

"The night wind moans as if in answer to the cry
of the lone sea bird finding its way to the shore in the
dark.

"With rush and crash a gale sweeps down. Great
waves leap up from the angry sea.

"Blazing demons dart from cloud to cloud, barking,
growling, howling.

"Now the sky empties its fountains into the sea.
The storm breaks in fury!

"Flash upon flash lights the heavens and all below.
The clouds are torn to shreds. Peal upon peal of jarring
thunder rolls over the water.

"The hours drag slowly by. Then the sky grows dark
again, and the wind settles down with a low moan.

"Ah! you should see old ocean now!

"Far as the eye can reach, the sea sparkles as if
swarms of fireflies were flashing their tiny lights in the
waves.

"The foaming crests are glowing coals. The darting fish are flaming arrows. The spray flies off in shooting stars.

"The sky is one huge fireplace. The dark clouds are thick smoke. The whales are burning logs. The leaping fish are sparks flung up to fall back into the live coals.

"Again the lightning flashes and the thunder groans. Rivers pour from the broken clouds. Now above, now below, Nature shows her grandest fireworks.

"At length the storm goes by. The dark clouds draw aside, and the stars light their little lamps once more.

"But for a long time the ocean rises and falls as if panting from the struggle with the gale.

"Then the weary raindrops lie down in the cradle of the sea, and the waves rock them to sleep."

As the brooklet ends the story it ripples softly over the pebbles as if saying good-by to its little friends.

All but the wild flower follow along the banks till the dimpled waves join the dark blue of the sea. The raindrops are home at last.

But hark! what sweet farewell is this, floating in on the breeze?

"The brooklet came from the mountain,
As sang the bard of old,
Running with feet of silver
Over the sands of gold.

"Far away in the briny ocean
There rolled a turbulent wave,
Now singing along the sea-beach,
Now howling along the cave.

"And the brooklet has found the billow,
Though they flowed so far apart,
And has filled with its freshness and sweetness
That turbulent, bitter heart."

LONGFELLOW

Sadly the little band turns back to the valley home,
but other raindrops now fill the brook bed.

Chip runs to greet the daisy, but its pretty head is
drooping in the long winter sleep.

"So end our happy days here," Redbreast chirps
softly. "The setting sun will find me far on the way
to the sunny south.

"Do not forget me. The April clouds will not fly
faster than I to meet you here when spring comes back.
But till then, good-by."

There is a long hush, as Bunny, Dick, and Chip watch
the winging feathers fade away in the sky. Then —



THE LAST MEETING WITH REDBREAST

"Tb-b-b, tb-b-b!" sings a loud voice.

"Pr-r-r, pr-r-r!" comes like an echo.

"They are getting ready to sleep in the mud, or else they are snoring there now," says Chip.

"To-hoot-to-hoo, hoo-hoo-hoo-hoo!" rolls out of a hole in an old tree.

"That is your friend, isn't it, Bunny?" laughs Chip.

"He says, 'Scoot, scoot, or I'll be after you-you-you-you!'"

As Chip is speaking, the wind comes whistling through the big oak, and down rattle the acorns.

"Here is work for us," barks Dick. "There are many tiny mouths to feed in our homes."

After a moment he adds: "Bunny, won't you move Mrs. Bunny and all the little buns over by the stone wall? Chip, Mrs. Chip, and all the little chips will be there."

"And lively chips they are, too," squeaked striped-sides. "Often I call them flying chips."

"But move over with us, Bunny," he adds. "How jolly it will be! Dick and I will keep an eye out for the old owl."

"It will be Dick's eye, not yours," thought Bunny, but he did not say so. He did not forget how Chip had run to hide under the rock when the owl scared him.

So it was settled. The bunnies moved to the old wall. Under a stump they found a hole, dry and warm, and big enough for all the tiny chips and buns to play tag in.

Chip asks me to say to all the girls and boys that read this book, "If you are ever down by the big hole, *drop in.*"

